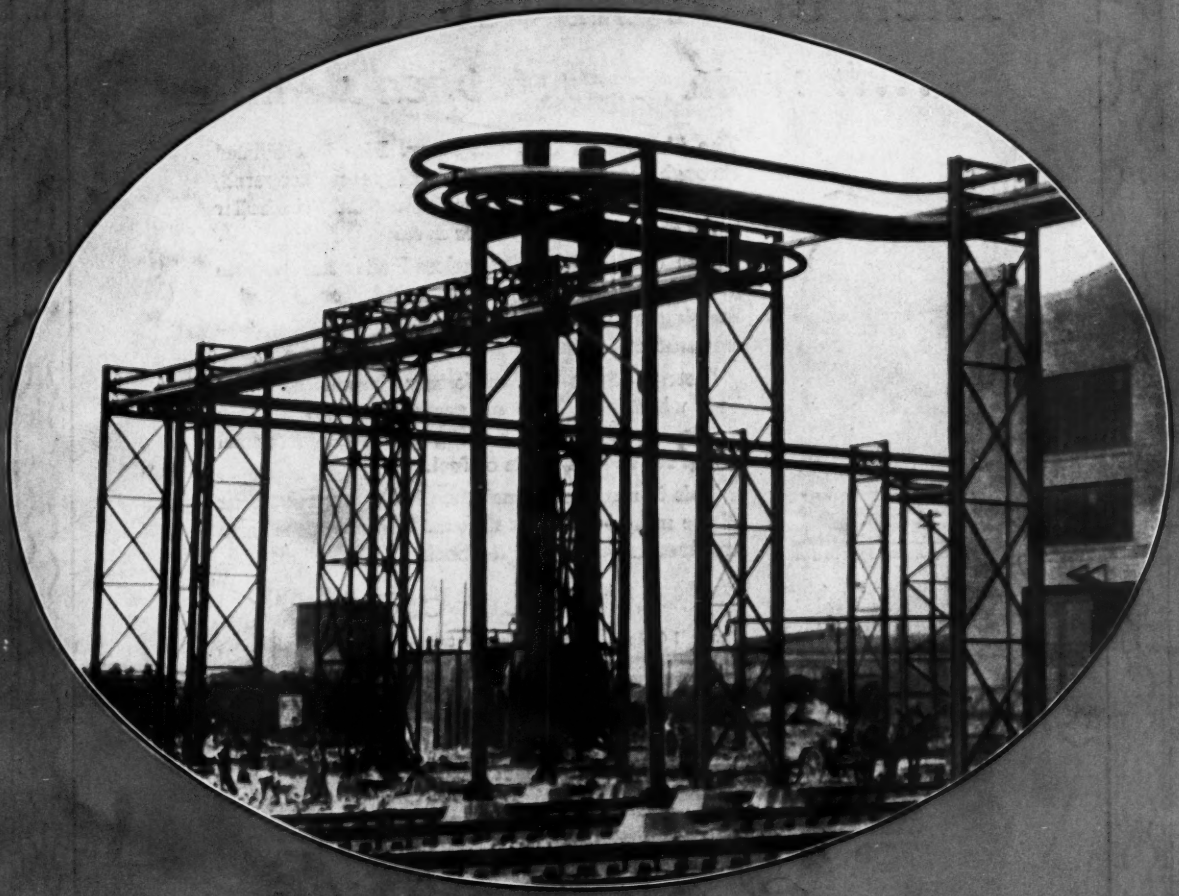
DOMESTIC ENGINEERING

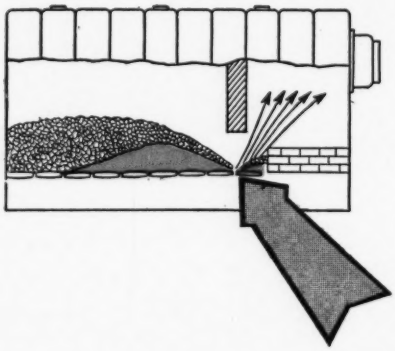
The Plumbing and Heating Weekly



Overhead distributing lines for water, air, steam, condensation, etc., for a group of buildings

Heating a Group of Locomotive Erection Shops

DECEMBER 8, 1928



Yes!

The fire has burned through

... the boiler has stopped steaming

The illustration tells the story. Fire has burned through, leaving a small section of grates uncovered, and cold air is rushing through. Instantly the boiler stops steaming. *Fire needs attention!*

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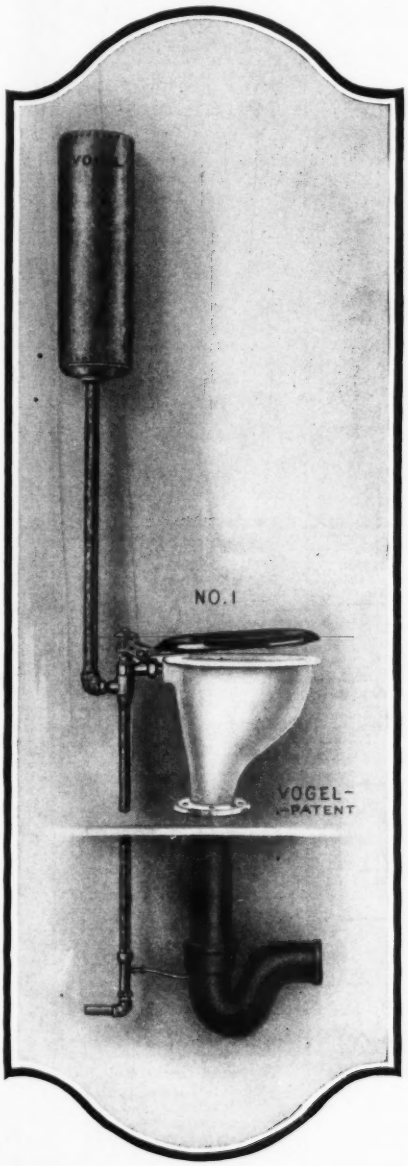
BOILERS

SMOKELESS BOILERS with LONGER FIRING PERIODS



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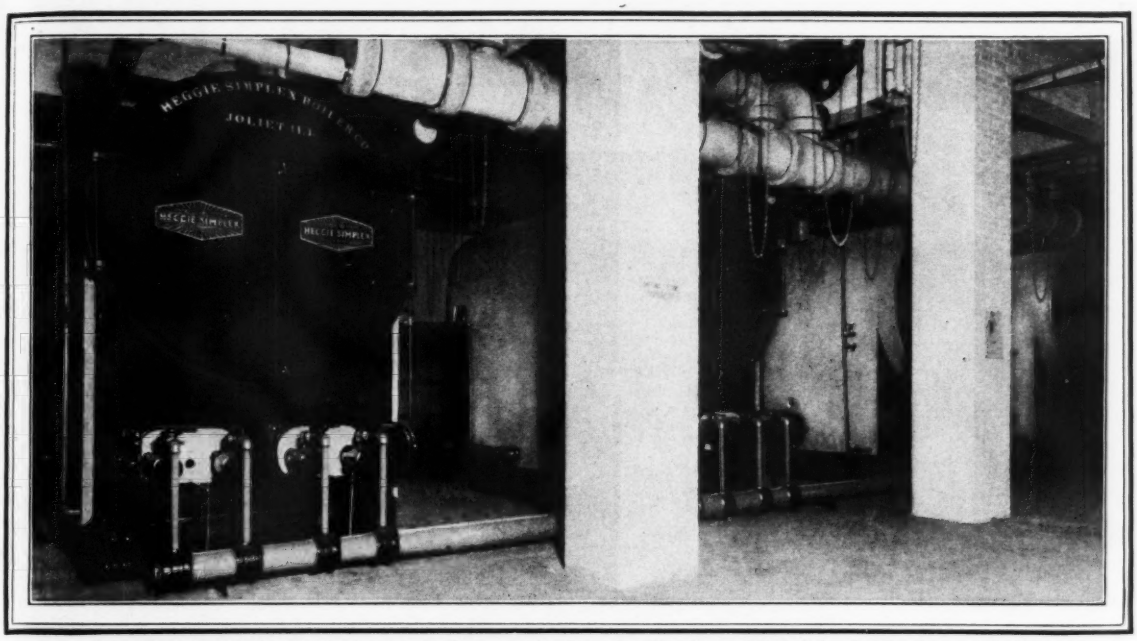

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Plomb Tool Co. ..... Los Angeles, Cal.
Plussco Co. ..... Concord, N. H.
Polygon Products Co. ..... Boston, Mass.
Porcela-Radax Co. ..... Pittsburgh, Pa.
Powers Regulator Co. ..... Chicago, Ill.

Radiant Steel Products Co. ..... Williamsport, Pa.
Radiator Specialty Co. ..... Charlotte, N. C.
Randolph-Clowes Co., The ..... Waterbury, Conn.
Rathbun Products, Inc. ..... Detroit, Mich.
Rawlplug Co., Inc., The ..... New York City
Reading Brass Works ..... Reading, Pa.
Reed Mfg. Co. ..... Erie, Pa.
Reeves Specialty Co. ..... Denver, Colo.
Reinhardt Mfg. Co., Edwin G ..... Cincinnati, Ohio
Rhode Island Fittings Co ..... Providence, R. I.
Richards Corp. ..... Pittsburgh, Pa.
Richmond Engineering Co. ..... Richmond, Va.
Richmond Foundry & Mfg. Co., Inc ..... Richmond, Va.
Ridge Tool Co. ..... Elyria, Ohio
Riverside Boiler Works, Inc ..... Cambridge, Mass.
Riverside Foundry & Galvanizing Co. ..... Kalamazoo, Mich.
Robbins, Gamwell & Co ..... Pittsfield, Mass.
Roberts Brass Mfg. Co., The ..... Detroit, Mich.
Robinson Mfg. Co., The ..... Cleveland, Ohio
Rockford Brass Works ..... Rockford, Ill.
Rock Island Mfg. Co. ..... Rock Island, Ill.
Royal Brass Mfg. Co., The ..... Cleveland, Ohio
Rumsey Pump Co., Ltd. ..... Seneca Falls, N. Y.
Russell Appliance Co ..... Springfield, Mass.
Russell Mfg. Co., Inc., John M ..... Naugatuck, Conn.
Russell & Co., W. A. ..... New York City
Rutland Fire Clay Co. ..... Rutland, Vt.

Sands Mfg. Co. ..... Cleveland, Ohio
Sanitary Bath Curtain Mfg. Co., Inc ..... New York City
Sanitary Engineering Co ..... Pittsburgh, Pa.
Sanitas Mfg. Co ..... Boston, Mass.
Sarco Co., Inc. ..... New York City
Scadron Brothers ..... New York City
Scaife & Sons Co., Wm. B ..... Oakmont, Pa.
Scientific Heater Co. ..... Cleveland, Ohio
Scott Valve Mfg. Co. ..... Detroit, Mich.
Semler Company ..... Jeannette, Pa.
S. E. T. Valve & Hydrant Co. ..... New York, N. Y.
Sherwood Brass Works ..... Detroit, Mich.
Simonds Saw & Steel Co. ..... Fitchburg, Mass.
Simplex Boiler Stand Co ..... Brooklyn, N. Y.
Simplex Mfg. Co ..... Chicago, Ill.
Spencer Regulator Co ..... Salem, Mass.
Standard Elsmere Granite Co ..... Chicago, Ill.
Standard Tank & Seat Co. ..... Camden, N. J.
Standard Water Systems Co. of N. J. ..... Hampton, N. J.
Stark Pump Co ..... Detroit, Mich.
Sterling Faucet Co ..... Newcomerstown, Ohio
Stoll, Chas. J. ..... New York City
Stringer Brothers Co. ..... Chicago, Ill.
Structural Slate Co ..... Pen Argyl, Pa.
Superbestos Co., The ..... Chicago, Ill.
Swett Iron Works, A. L. ..... Medina, N. Y.

Taylor Co., Halsey W., The ..... Warren, Ohio
Teck Manufacturing Co. ..... Chicago, Ill.
Test-Tite Co ..... Philadelphia, Pa.
Thatcher Co. ..... Newark, N. J.
Thermal Appliance Company, Inc. (New Name—Taco Heaters, Inc.) ..... New York City
Tillery's Little Janitor Clock Co. ..... Newark, N. J.
Toledo Pipe Threading Machine Co ..... Toledo, Ohio
Trageser Steam Copper Works, John ..... Maspeth, N. Y.
Trenton Brass & Machine Co. ..... Trenton, N. J.
Trimont Mfg. Co., Inc ..... Boston, Mass.
Tryco Products, Inc ..... Westfield, Mass.

Universal Smokeless Boiler Co ..... Ravenna, Ohio
Utility Laboratory, Inc. ..... Brooklyn, N. Y.

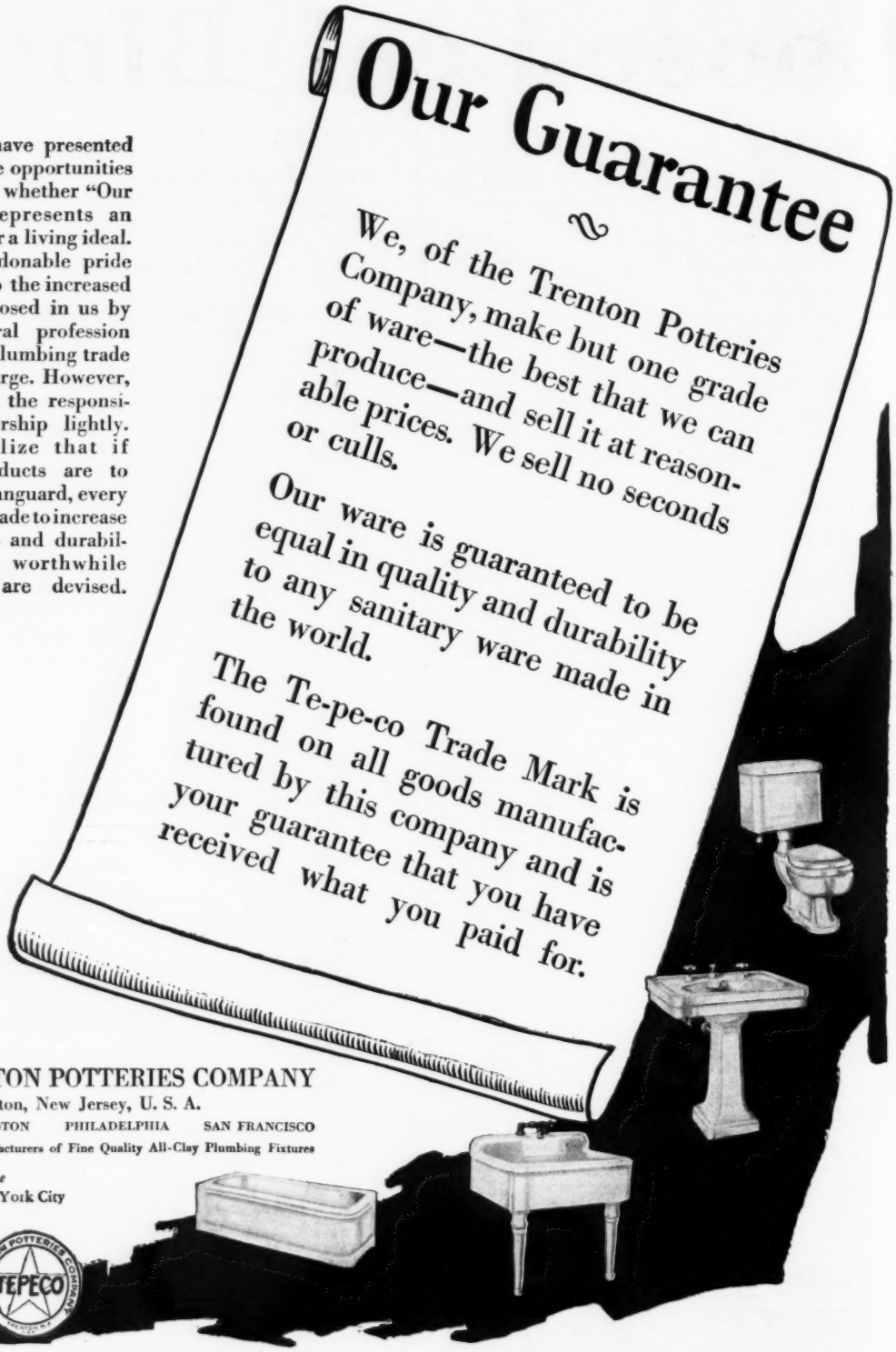
Van Arnam Mfg. Co. ..... Fort Wayne, Ind.
Vanderman Mfg. Co ..... Willimantic, Conn.
Vinco Co., Inc. ..... New York City
Vitreous Enameling & Stamping Co., Inc. ..... New York City
Vogel Co., Joseph A. ..... Wilmington, Del.
Vulcatex, Inc ..... Chicago, Ill.

Wade Iron Sanitary Mfg. Co ..... Chicago, Ill.
Walworth Company ..... Boston, Mass.
Ware Coupling & Nipple Co ..... Ware, Mass.
Warnock Manufacturing Co ..... Worcester, Mass.
Washington Metal Products Co ..... Washington C. H., Ohio
Watts Regulator Co. ..... Lawrence, Mass.
Weis Mfg. Co., Inc., Henry ..... Elkhart, Ind.
Wesely Co., Chas. ..... Chicago, Ill.
Wessels & Sons, D. D. ..... Detroit, Mich.
Western Metal Specialty Co ..... Milwaukee, Wis.
Western Wire Products Co. ..... St. Louis, Mo.
Wheeling Machine Products Co ..... Wheeling, W. Va.
White Flush Valve Mfg. Co. ..... Denver, Colo.
White Steel Sanitary Furniture Co ..... Grand Rapids, Mich.
Whitlock Coil Pipe Co. ..... Hartford, Conn.
Wilkins Co., Geo. H ..... Chicago, Ill.
Wilks Mfg. Co., S. ..... Chicago, Ill.
Williams & Co., J. H. ..... Buffalo, N. Y.
Woodward-Wanger Co. ..... Philadelphia, Pa.
Worcester Brush & Scraper Co. ..... Worcester, Mass.

"X" Laboratories ..... New York City

Yeomans Brothers Co. ..... Chicago, Ill.
Yost Mfg. Co ..... Meadville, Pa.

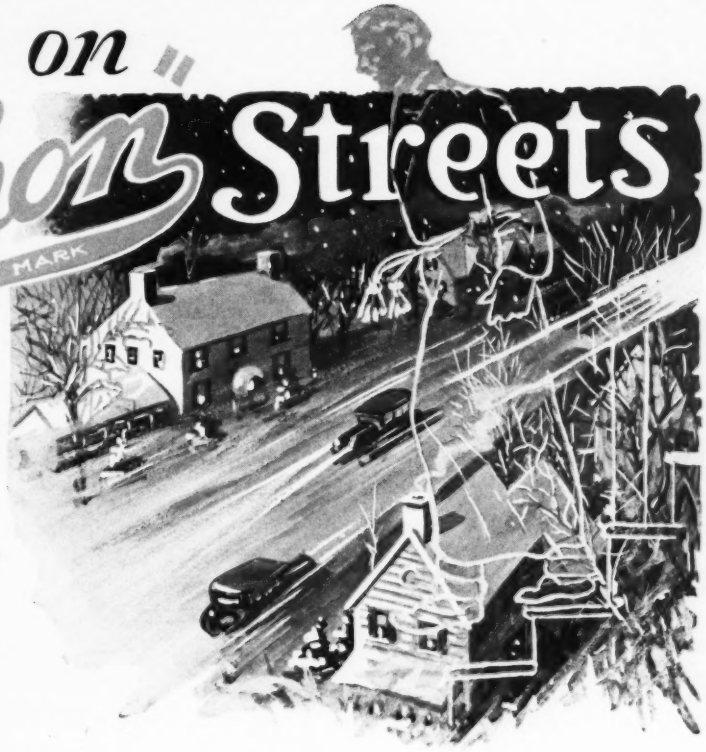
THE years have presented innumerable opportunities to demonstrate whether "Our Guarantee" represents an empty phrase or a living ideal. It is with pardonable pride that we point to the increased confidence imposed in us by the architectural profession as well as the plumbing trade and public at large. However, we do not take the responsibility of leadership lightly. We fully realize that if TE-PE-CO products are to remain in the vanguard, every effort must be made to increase their usefulness and durability whenever worthwhile improvements are devised.


Our Guarantee
We, of the Trenton Potteries Company, make but one grade of ware—the best that we can produce—and sell it at reasonable prices. We sell no seconds or culls.
Our ware is guaranteed to be equal in quality and durability to any sanitary ware made in the world.
The Te-pe-co Trade Mark is found on all goods manufactured by this company and is your guarantee that you have received what you paid for.

THE TRENTON POTTERIES COMPANY
Trenton, New Jersey, U. S. A.
NEW YORK BOSTON PHILADELPHIA SAN FRANCISCO
World's Largest Manufacturers of Fine Quality All-Clay Plumbing Fixtures
Export Office
115 Broad St., New York City

TRENTON
THE TRENTON POTTERIES COMPANY

The Ghosts on "Sylphon TRADE MARK Streets



Just Memories of Frequent Basement Trips and Damper Cares

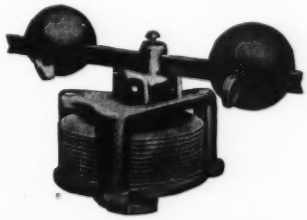
The Sylphon Bellows Made Possible Automatic Draft Control in 1913

SYLPHON Damper Regulators for every Steam, Hot Water or Vapor Heating System, are today *standard factory equipment by 36 of the nation's leading boiler manufacturers.* What an indorsement! "Sylphon" Streets are today in every town. Home keepers are forever freed from that wearisome up and down stairs vigil to regulate dampers. They are saving bothersome labor, and fuel costs as well.

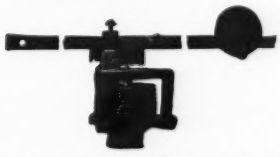
Sylphon Damper Regulators

HAVING for their expansion element the original and genuine Sylphon Bellows, positively afford lower cost heating. Their responsive action to the slightest changes in temperature is constant and dependable. Their great durability makes them outlast the lifetime of the boiler. No other damper regulator approaches the Sylphon in long and satisfactory service. From the greatest industrial plants to the most modest homes on "Sylphon" Streets, everywhere in the land, the Sylphon Bellows has carried genuine industrial economy and emancipation from worrisome cares and manual labor.

Cut open view of No. 45-A Sylphon Hot Water Damper Regulator. Controls from 120 deg. to 220 deg. F. Length of bulb 2 inches; threaded 2-inch pipe size. Installed in a Y or screwed into boiler.



No. 924 Sylphon Steam Damper Regulator, extra sensitive.



No. 22 Sylphon Damper Regulator for low pressure steam boilers with light dampers.

There is a Sylphon Damper Regulator for Every Steam, Hot Water or Vapor Heating System

Send for full descriptions in Bulletin KDR-8.

THE FULTON SYLPHON COMPANY
KNOXVILLE, TENNESSEE

Representatives in all principal cities in U. S. A. European Representatives, Crosby Valve & Engr. Company, Ltd., 4½ Foley St., London, W1, England. Canadian Representatives, Darling Bros., Ltd., 140 Prince St., Montreal, Que., Canada.

The H.B.Boiler dons a new jacket of Mountain Ash Scarlet as modern America discovers its liking for Beauty *and* Design

THE paint people's slogan, "Save the surface and you save all," might well be changed to read, "Decorate the surface and build sales"; for modern America prefers its merchandise dressed up.

Art in industry is a real factor in today's selling campaigns. You can see a thousand instances of this. Articles great and small, important and unimportant, have taken on new beauty, new good looks.

Now the handsome new tailoring of mountain ash scarlet for the H. B. Boiler places a powerful sales weapon in your hands, catering directly to this modern trend.

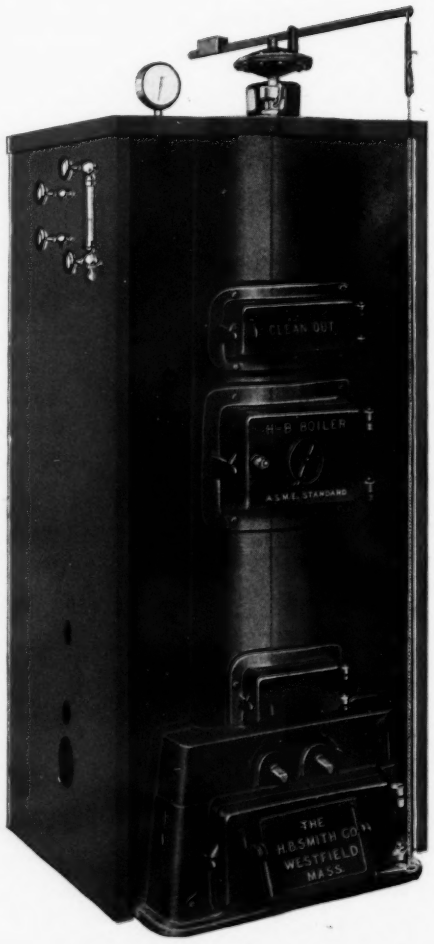
Write for complete information. Also for information on the H. B. Smith new "144" Full Surface Radiator; and on our new gasket which saves you time and money on installations of our boilers. The H. B. Smith Co., Dept. A-55, Westfield, Mass.

THE H·B·SMITH
BOILERS & RADIATORS
Used in fine homes and buildings since 1860

The H. B. Smith Boilers for steam, hot water and vapor heating; radiators; and hot water supply boilers; for every type and size of private home, office building, factory and public building

Sales Offices and Warehouses:

New York: 10 E. 41st St. Boston: 640 Main St., Cambridge
Philadelphia: 49th St. & Grays Ave.
Cleveland: 1108 Webster Ave. S. E. Westfield, Mass.



The Boiler with the SWELL Front

A Letter from Harry G. Nye

Dec. 8, 1928.

To the Plumbers and Steam-fitters of the U. S. A.

Friends:

"Take Time by the fore-lock," says the old saying—although the old boy has hardly a hair in his head. It's a good idea, but you never can tell. There's Mother, for instance. She had Daughter vaccinated on the leg, so the scar wouldn"t show. Much good that does now!

But Mother did the best she could. She had no way of knowing that this year's collar would be next year's skirt. When Daughter used to write home that she was making a good showing at college, Mother used to be pleased. Now she is worried almost to death.

Still, a man ought to make a grab at Time's forelock, even if all he gets is a handful of gray whiskers. He certainly ought not to go it blind, like a fellow driving a flivver. He ought to have his ear to the ground, or someone may put it there.

Many a man has been hit by a railroad train and thought that "I didn't see it coming" was a good excuse. And many a man has been passed by prosperity who thought "I didn't see it coming" was an alibi. There he was, right down at the union depot, with his tool-kit in his hand, and the train pulled in, and pulled out, and he didn't even get on.

No wonder Herbert Hoover is traveling to Washington by way of South America. Two days after election the fellows wanting postoffices were lined up four deep along the right of way from Palo Alto clear to Washington. No wonder Herbert went around.

I think we have four good years ahead of us, not so much because of the result of the election, but because the darned thing is over. The farmers are pretty well over their mad, and as full of hope and confidence as a bride.

So we ought to take Time by the forelock and get ready for business. Old Time ought to himself. Here he is running around with a scythe, when he could buy a harvester. He is like some fellows in the plumbing and steam-fitting and electrical trades are about pipe-cutting tools.

There is no better way to grab Time by the tassel than to fit your shop out with Nye Tools. They have so many exclusive features, work so much faster and easier than any others, that they save time, temper and material. And that all means profits.

Faithfully yours,

Harry G. Nye

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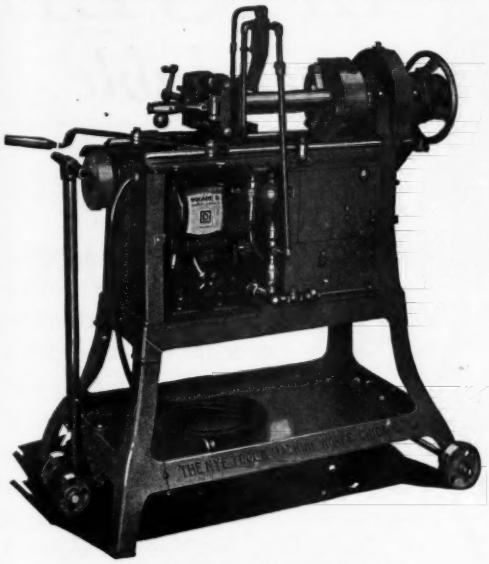
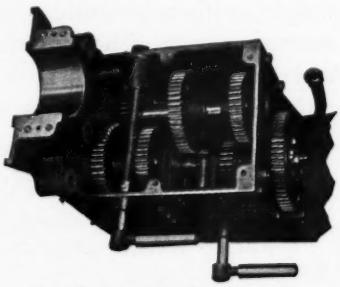
NYE POWER MACHINES

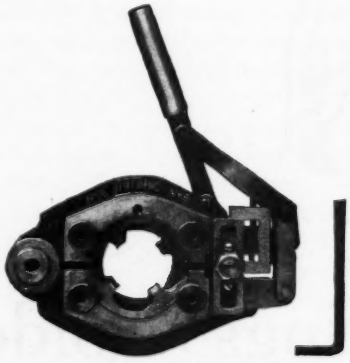
ALL GEAR DRIVEN—NO BELTS OR CHAINS



No. 100—Capacity ¼ to 2 inches inclusive
No. 200—Capacity ¼ to 2½ inches inclusive
When used with Universal Shaft will operate stocks up to 12 inches.



Gear Case running in oil assuring perfect lubrication



QUICK OPENING DIE HEAD
Equipped With Trouble Proof Ring Type Dies (No Chasers)

OTHERWISE KNOWN AS

THE NYE TOOL & MACHINE WORKS

MANUFACTURERS OF HIGH GRADE PIPE TOOLS

4120-30 Fullerton Avenue Chicago, Illinois

EAGLE
dependable fittings

Reg. U. S. Pat. Off.

It seems so obvious to say that the easy way to build customer satisfaction is to standardize on products known for their *dependability.* And yet lots of jobs fail to get that desired good will simply because dependability has been sacrificed for some other theoretical advantage.

Eagle Lead Fittings are *dependable.* Made of virgin pure lead—the tough, elastic metal that withstands shocks that break other metals. Scientifically manufactured—standard weight, uniform dimensions, smooth reamed ends, polished interior and exterior surfaces. Build your reputation upon Eagle lead products.

THE EAGLE-PICHER LEAD COMPANY

Producers of lead, zinc and allied products

CHICAGO · JOPLIN · CINCINNATI

EAGLE Lead Pipe · Fittings · Solder

"Domestic Engineering" brings to its readers services for which they would have to pay many times the price of subscription.

Between Ourselves

"More than ten million American homes are ready for modernizing." —H. C. Boyden of the Home Modernizing Bureau.

With a minimum clearance of twenty-two feet, and a double thickness of 85 per cent magnesia covering, weather-proofed with roofing paper, the steam line on the front cover of this issue carries steam for one of the largest locomotive erection shops in the country. While it is not necessary that such large structures be heated and ventilated as thoroughly as a theater or auditorium, it is essential that sufficient heat be maintained so as not to make the workmen uncomfortably cold.

Your Editor

"HEATING a Group of Locomotive Erection Shops," by Paul Sodemann, describes the heating in a large new railroad shop in Kentucky. Aside from the necessity of heating each building and keeping it at the proper working temperature, the plant is a district heating system, requiring that steam be carried from the power plant to the individual buildings. These steam lines are above ground, and must be protected in order to insure a minimum heat loss. The article is well illustrated, and is interesting to the heating man because of the barnlike structure to be heated, and the great amount of bare wall space.

A BOY of less than twenty-one years of age starting out in the plumbing business with only thirty dollars in capital, and because of his minority, unable to get credit, smacks of real business romance. At the same time, few of us would ever suggest that sort of an undertaking at the present time, because of the improbability of the business resulting in anything but failure. However, that is how one master plumber in Portland, Ore., got his start, and the Sales Manager tells his story in this issue. It is a story of the absolute permanence of well established retail outlets in the plumbing and heating field, and the Sales Manager calls the story, "Permanence." It is a story well worth reading to every plumbing and heating contractor.

A NUMBER of plumbing and heating contractors has made successful forays into allied fields, with the result that there is an increased interest on the part of the public in going into the establishment of the contractor, and so, perhaps, being attracted to plumbing and heating equipment. One of these so-called accessories to the business is gas refrigeration. The piping contractor still does a great deal of gas piping, so why should he not also install gas refrigeration? In this issue is an article explaining the working of gas refrigerators, in order to give plumbing and heating contractors a short, concise knowledge of this equipment.

ERICK E. BUENGER, of Chicago, writes the following about "Domestic Engineering" when writing on another matter. "First of all I want to let you know what I think of 'Domestic Engineering.' It is worth many times its subscription rate."

THE importance of standardization of certain materials and equipment in the plumbing and heating industry has long been recognized. The United States Department of Commerce has been active in promoting standardization in a number of fields, and in the plumbing and heating industry the National Association of Master Plumbers and the Heating and Piping Contractors National Association have been important factors in the standardization moves made to date. The retailer in our field is a business man, with the interests of the industry at heart. He is willing to give up his own time to benefit the industry.

ALTHOUGH very few sections of the country have yet had big snowstorms, or sustained cold spells, winter is on its way, and one of the important results to plumbing in cold weather is the freezing of roof leaders. When it gets warm enough at noon time to melt the snow on roofs, but still not warm enough to melt it in the leader, water backs up, and another freeze that evening is likely to be dangerous to the roof, chimney and parapets, etc. H. T. Hall writes this week on "Keeping Roof Leaders Open in Winter," an article of interest at this time of year.

THIS department wishes to be first in everything, and so at this time we will start talking about the close of the past year. It has been a year of merchandising effort on the part of the plumbing and heating contractor, as shown by the increase in number of showrooms and the amount of material available for feature articles. In the next issue will be the last merchandising section of 1928. It is the climax of a merchandising year, and the forerunner of a year of still more merchandising.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe

JOB TO FIGURE!
"TOLEDOS" WILL HELP TO GET IT PROFITABLY

There are many contractors who still must figure close to get the good jobs

Many others depend on "Toledo" equipment to cut labor and show a profit on the job.

You can turn those imaginary profits into real money by handling your piping jobs the "TOLEDO" way. There is no guessing your costs or paring your profit to land the job when you use "TOLEDO" power drives to operate "TOLEDO" pipe threading and cutting tools.

Thousands of contractors will vouch for the ability of a "TOLEDO" power drive to reduce labor costs, speed the work and increase profits on piping jobs. They can show large savings and handsome returns from their "TOLEDO" power drives. If you are not already a user of "TOLEDO" power drives, you owe it to yourself to investigate the merits of these remarkable machines. A post card to us will bring you complete information.

THE TOLEDO PIPE THREADING MACHINE COMPANY

TOLEDO, OHIO • • • **New York Office, 72 Lafayette St.**

DOMESTIC ENGINEERING

Vol. 125, No. 10
Whole No. 1878

The Plumbing and Heating Weekly

Chicago, Illinois
December 8, 1928

OBSERVATIONS

Raise the Qualifications

Before a man may become a lawyer, he must go through high school; he must take two years of college preparatory work; and then comes four years' study of the law itself—a total of ten years spent in preparing himself to study law, followed by a stiff examination. Even then he must enter upon an apprenticeship in a law office before it is felt possible to entrust a case of any importance to him. The bar association itself has raised these qualifications in order to assure itself of men of a high caliber in the profession.

Suppose that every retailer who goes into business in our industry in the future had back of him the education represented by such an institution as Carnegie. He would be not only a competent mechanic; he would be an educated man, easily on a par with the professional men of his community from the beginning. He would have the advantage of education on his side and would not have to go through the hard years which so many successful men in our field have had to face.

Where to Start

The effect, as far as the industry is concerned, is obvious. It is the "Man Friday," in business only because he has a kit of tools and the use of a wholesaler's capital, who has pulled down the average of ability among our retailers, and made a lamentable impression on the public.

Our industry should do what the lawyers have done; raise the qualifications of those who are to become retailers in the future. Not only credit qualifications should be raised, as pointed out in one of our recent editorials. That is a method looking to immediate results. The industry should take it upon itself to raise the qualifications all along the line, commencing with this matter of education. Men among the ranks of the journeymen—the potential contractors of the future—should have held before them higher standards. Those who would face the task of fitting themselves would be worthy representatives of the industry in every way, the new type of retailer would be a business man capable of maintaining the prestige warranted by the fundamental service the industry renders.

Room for Optimism

The fact that every serious-minded man who makes a study of his industry does so critically, with an eye to improvement, sometimes induces a slightly pessimistic viewpoint. Every time he speaks of his industry, it seems that he can only criticize. For this reason it is well now and then to review the advantages enjoyed by the industry so that we will keep the critical outlook in perspective and not give it undue importance. Ours is an industry serving a fundamental need. It can never be dispensed with. It needs mechanical skill—which can be won only through years of experience—so that, in spite of the undoubted "handy man," we are not as much bothered by competition from outside sources as is the average retailer whose products must be sold even in the "drug store." Shoes, for instance, are sold in more than twenty other types of stores, according to a recent survey. What if we had that kind of competition! It is an interesting business. No two days are alike; every job brings special problems which must be solved, which makes for mental agility. And it may claim a share in the larger interests of the community in that it does contribute materially to the health of those whom it serves. There is also evidence tending to prove that it is a business in which a man may make money, if he is so inclined. There is room for optimism in this plumbing and heating business.

Some Blessings

STYLE IN BATHROOMS AND BOILERS

With the introduction of color into kitchen and bathroom ware, as well as on boilers, there has been a noticeable increase in the endeavor to give style to the design of such fixtures of the plumbing and heating installation. We have, therefore, a new appeal to the consumer which should be used. As the style viewpoint has made the average person change his car every year or two, so we may secure the remodeling of some of the everlasting plumbing and heating installations which have been serving satisfactorily for years. If we can induce a critical viewpoint in the home owner with reference to his bathroom and his boiler, he (or his wife) will be willing to listen the more readily to the remodeling idea. The style idea may thus become a strong factor in building up a volume of this type of business which may be secured by good selling methods, freed from the grinding conditions of the competitive project.

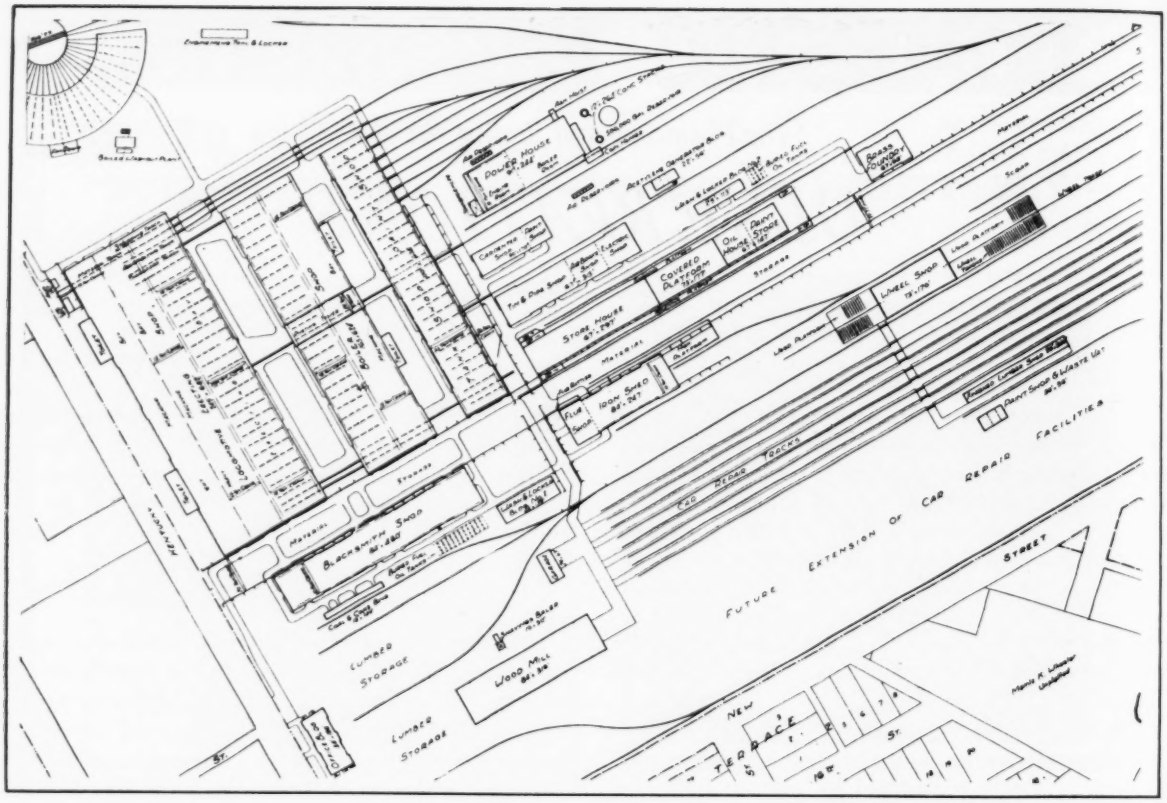


Fig. 1.—Location plan of the locomotive erection shop of the Illinois Central Railroad at Paducah, Ky.

Heating a Group of Locomotive Erection Shops

By PAUL SODEMANN

THE heating of a group of railway shop buildings is an undertaking distinguished by its size rather than by a multitude of technical detail such as might be found in air conditioning an auditorium, for instance. The methods used and results obtained are just as interesting, however, when the designers have given it much careful study. While slight temperature changes are not noticeable to men at work, it is essential that large volumes of steam are delivered constantly to maintain comfortable working temperatures at all times.

The locomotive erection shops of the Illinois Central Railroad at Paducah, Kentucky, presented just such a problem and it has been worked out in such detail by their engineers as to warrant the special attention of contractors and engineers. It is doubtful whether as much careful thought and study heretofore has been applied to the heating of such shops.

The group of buildings illustrated on the location plan, Fig. 1, consists of a locomotive erection shop 245 by 682 feet, a boiler and boiler machine shop 165 by 624 feet, a tank and paint shop 100 by 624 feet, a wheel shop, a blacksmith shop, a wood mill and various smaller buildings, all of which are heated from the boilers in the power house.

The construction of the buildings generally is of steel frame with brick curtain walls and large glass areas. The interiors of the shops are illuminated without the use of artificial light in the daytime, the glass area comprising about two-thirds of the walls and roof. Exceptional ceiling heights are necessary to provide clearance for the monster cranes which travel the entire length of the buildings. Some idea of the size of the buildings can be had from Figure 2 shown at the left, which illustrates the interior of the paint and tank shop.

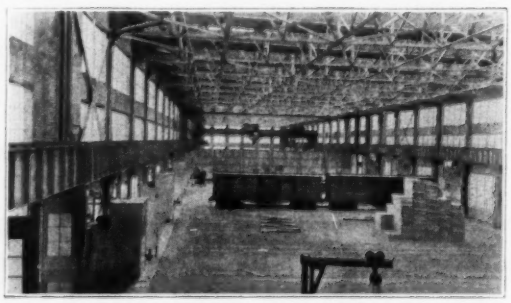


Fig. 2.—Interior of paint and tank shop. Note freight cars setting in tandem

Steam is generated in the power house by eight 800-horse power water tube boilers. Some of the steam is used for driving the air compressors, hydraulic pumps and turbine driven boiler feed pumps but no electricity is generated in the plant and by far the greater part of the steam is used for the heating load which is the equivalent of approximately 300,000 square feet of direct radiation. Provision in the boiler plant has been made for the heating of the car repair shop to be built at a later date.

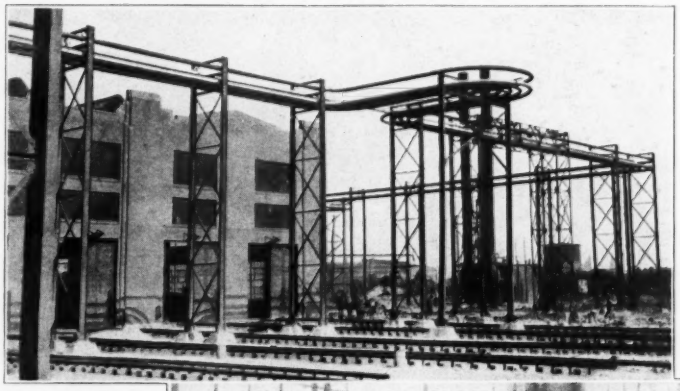


Fig. 3.—Overhead distributing lines for water, air, steam, condensation, etc.

Steam in the boiler header is carried at 180 pounds pressure and 100 degrees superheat and it is carried from the header to the various buildings through overhead distributing lines shown in Fig. 3. These lines all have a minimum clearance of twenty-two feet from the top of the rail below, and are all insulated with double thick 85 per cent magnesia covering and weather-proofed with roofing paper.

A novel method was used in dripping these high pressure lines into the vacuum returns where they enter the buildings, the details of which are shown in Fig. 4 and graphically indicated in Fig. 15. The high pressure trap on the ends of these lines discharges into a flash chamber constructed of eighth-inch pipe having a one-inch vent for the escape of such steam as re-evaporates. This vent is connected to the heating supply main when same is in operation or the atmosphere when same is not. The condensation from the flash chamber is dripped into the vacuum return main through a pot type trap which is also by-passed to the sewer. All by-pass and vent lines are equipped with lock and shield type valves to prevent unauthorized persons from operating them. Practically all the superheat is lost before the steam reaches the buildings.

For greater flexibility, lower line losses and the use of smaller pipe sizes the steam is reduced in two stages, the first being made immediately upon entering the building where it is reduced from 180 pounds to 75 pounds. The distribution in the larger buildings is made at this pressure to the various second stage reducing valves where the steam is further reduced to 5 pounds which pressure is carried on all supply mains. Some exhaust steam is available at the power house and it is used in the buildings nearest to it with a makeup valve in the power house.

The same is true of the blacksmith shop where the exhaust from the steam hammers is utilized for heating.

Fig. 4.—Drip on end of high pressure supply line

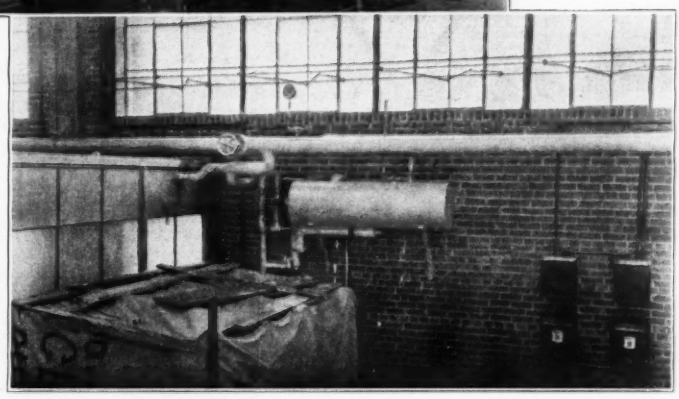


Fig. 5.—Hot water supply to foreman's office

UNIT HEATERS WITH INDIVIDUAL CONTROLS MEET VARYING DEMANDS

THE UNIFORM heating in the buildings the size of these shops, the walls and roof of which are two-thirds glass, without undue overheating at the roof and the consequent excessive heat losses, was accomplished with unit heaters which were set along the outside walls and discharged the air horizontally toward the center. In the larger buildings an additional row of units were set along the center row of columns, discharging toward both outside walls. The units were built so they can be operated by gravity or by use of a disc type fan at the top which is direct connected to an electric motor. The heating element consists of indirect radiation and each unit is provided with a circulating duct which extends to within eighteen inches of the floor. By-pass dampers are provided for gravity operation in mild weather. The fan is controlled by a thermostatic switch located on each unit about four feet from the floor which starts the fan motor the minute the temperature drops below a predetermined point and stops the motor as soon as the temperature reaches the desired point.

Steam is always present in the indirect coils and the unit continues to heat by gravity even with the fan standing still. The possibility of the individual control can be readily appreciated by observation of the shop conditions.

Fig. 6.—Interior of blacksmith shop

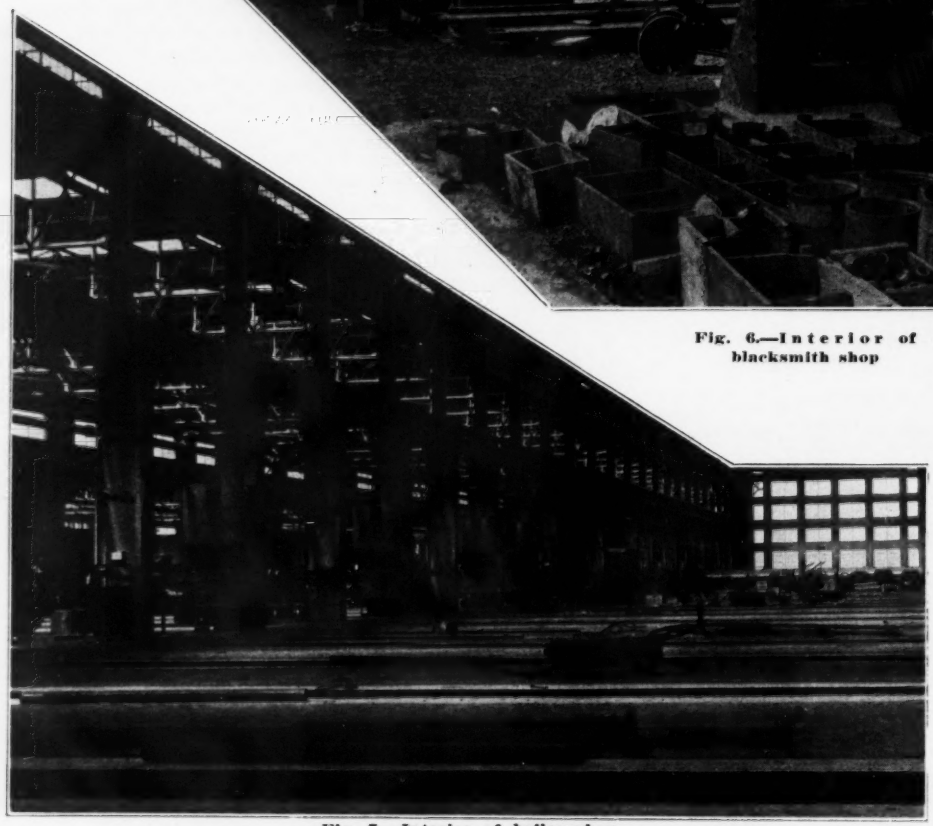


Fig. 7.—Interior of boiler shop

In one bay of the shops will be an engine all complete and under steam ready to leave under its own power giving off many heat units whereas several bays away a locomotive will be dragged in which has stood outside in sub-zero temperature for a week perhaps. The heat content of this mass of cold iron will absorb all the heat several units can emit for an hour or more, but the very fact that the units nearest will have their fans running will keep the cold air dropping from this mass of iron to the floor from moving all over the floor of the shop, in fact the agitation of the air at this point will have a tendency to draw on the storage volume of the heat in the building and concentrate it where it is most needed. On account of the high ceilings the re-circulating feature of these heaters has a very noticeable effect on the comfortable knee-high temperature obtained in these shops in the coldest weather.

Method of Hot Water Supply

The foremen's offices are entirely enclosed. In this way the offices can be kept much cleaner than would otherwise be the case. Heat for these individual offices is provided by an ordinary system of direct radiation manually controlled. Each office also has a lavatory with hot and cold water supplied at all times. As these offices are scattered over a large area, often far from any source of hot water it was quite a problem to provide hot water at these points without undue expense, and losses in transmission. This was worked out in a unique manner. An ordinary residence type of range

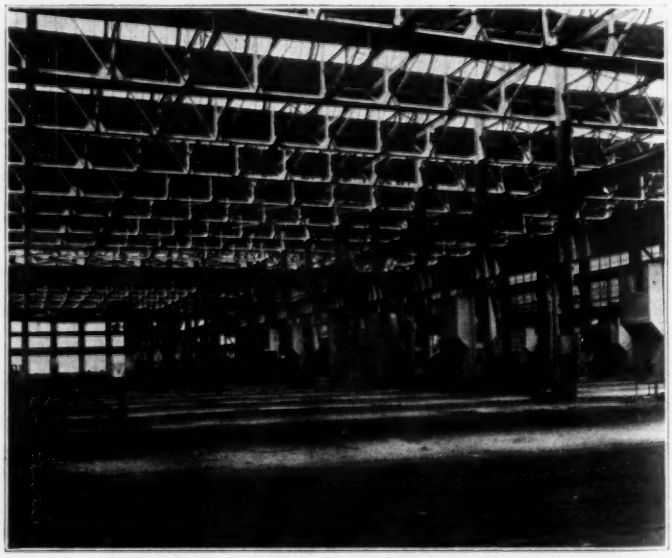


Fig. 8.—Another view of the interior of the boiler shop

boiler was connected to the shell of a submerged type hot water heater such as is used in connection with a heating boiler. The steam passes through the coil of the heater, which coil was treated just as a radiator so far as the condensation was concerned. Thermostatic control was applied to the steam supply, the bulb being inserted in the tank. This arrangement gives a constant supply of hot water at all times at a very low cost.

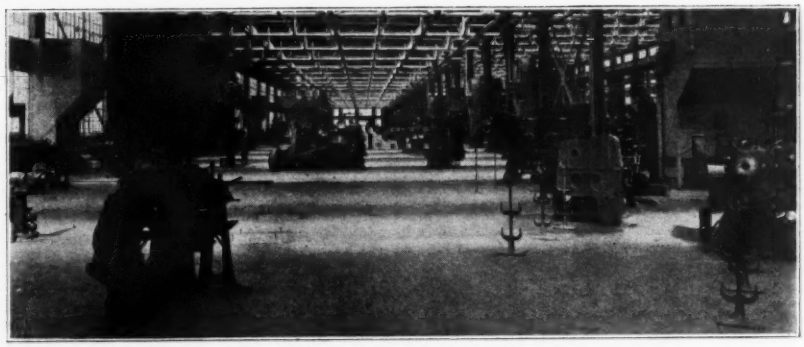


Fig. 9.—Small machine bay of the locomotive erection shop

Fig. 10.—The heavy machine bay of the locomotive erection shop

As the system of steam distribution used is two-pipe vacuum, batteries of vacuum pumps were installed at certain centrally located points, the returns from the various buildings being run underground to these centers, the discharge from the pumps going to a hot well in the power house through the overhead lines. Instead of using one large vacuum pump or perhaps a duplex unit, batteries of simplex pumps were installed, each unit with its own receiver and starting equipment. The automatic features are so adjusted that the pump which is to run most will cut-in the highest float or vacuum and if it fails to maintain this amount of vacuum or keep the water below this point the next pump wil start, and it failing, the third and fourth also if necessary. This arrangement makes for lower starting current and less current consumption as there is a small pump running most of the time rather than a large one starting and stopping constantly.

All pipework ex-

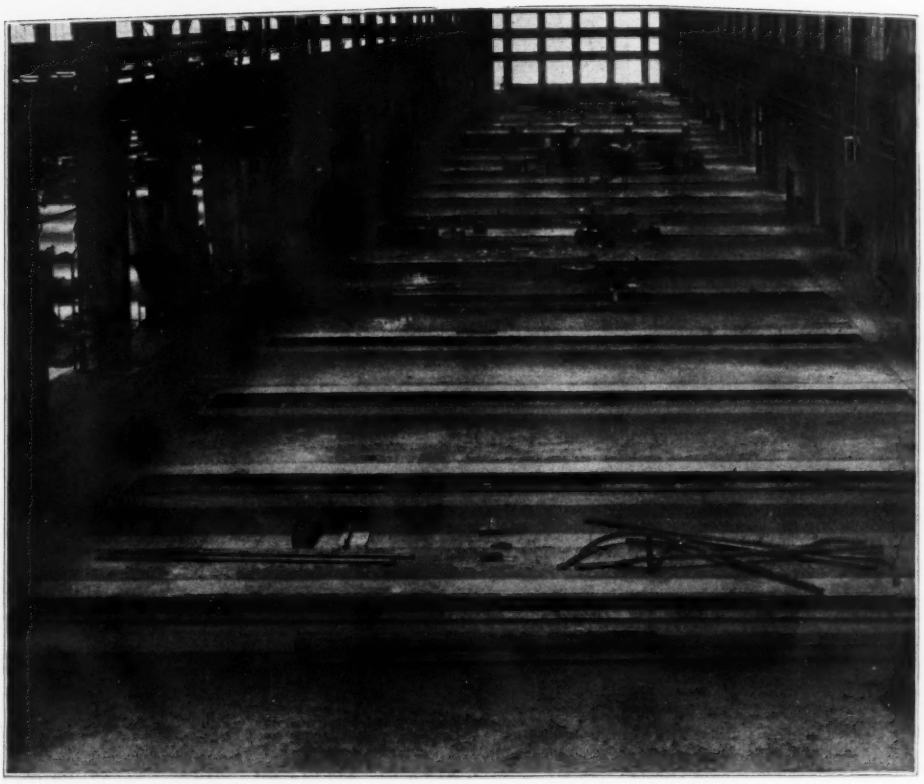


Fig. 11. — Locomotive erecting bay of the locomotive erection shop

cept the vacuum return in heated spaces is covered and the nature of the line is indicated both by the color used in painting the pipe or pipe covering as well as a stencil description and an arrow indicating direction of the flow.

The plant has operated one whole season and the results obtained justify the judgment and the foresight of the designers in their attempt to make this a decided step forward in the practice of heating railroad shops. It remains for some research engineer or efficiency expert to figure out just how much more work each man can do under such pleasant and comfortable temperatures and atmospheric conditions as are obtained here, and one does not have to be a close observer to see that there is no time lost standing around open fires to get warm as is customary where the heating problem has not been solved properly.

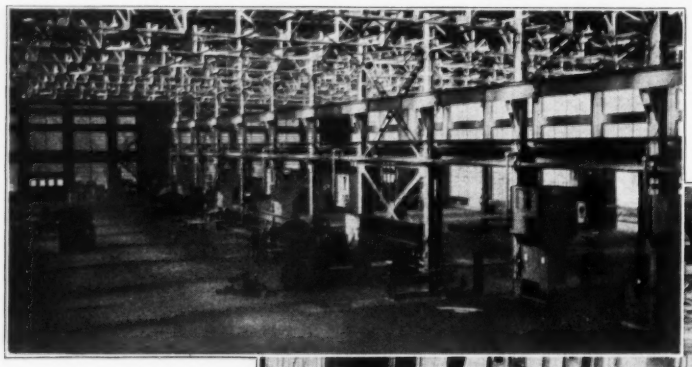


Fig. 12.—Interior of boiler erection shop

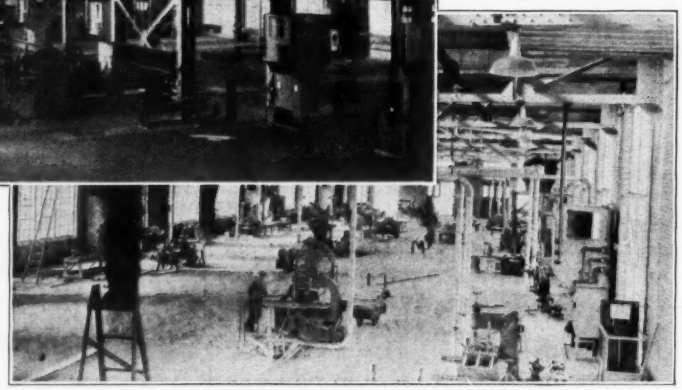


Fig. 13.—A view of the wood mill

A NEW FIELD OF ENDEAVOR FOR THE HEATING CONTRACTOR

THE RECOGNITION of the heating problem by such a large institution as the Illinois Central Railroad, which of necessity must make every dollar spent for equipment yield returns on the investment, indicates the opening of a new field of endeavor for heating contractors and engineers, that of heating in industry. Until very recently when the word heating was mentioned, one ordinarily thought of residences and public building work, and even the term air conditioning seemed to apply only to theaters and in rare instances to industries where some process such as drying was used. In the meantime, the butcher, the baker, and the candlestick maker,

(Continued on Page 62)

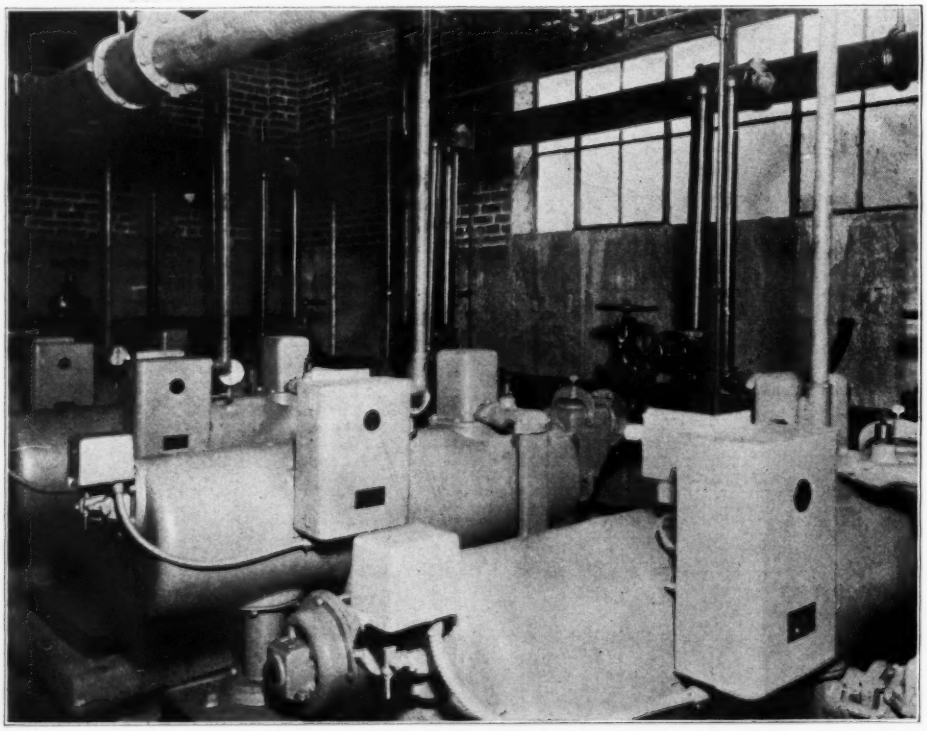


Fig. 14.—A battery of vacuum pumps in the boiler shops

Keeping Roof Leaders *Open in* Winter

By H. T. HALL

IN COLD climates, the matter of keeping the roof leaders open at all times assumes considerable importance. On a day when the temperature around noon is hovering close to the freezing mark the combination of sun on the roof and the warmth of the building may be sufficient to melt the snow without being sufficient to thaw out the inside leader which may have been frozen up

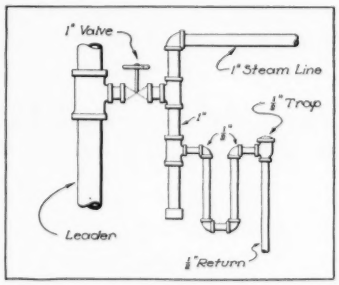


Fig. 2

tight, just under the roof below the leader box, during a previous cold snap.

As a result of this combination of circumstances the water resulting from the melting snow stands on the roof, until such time as the tops of the leader pipes thaw out by continued warm weather but if the weather turns cold again this water freezes into a solid cake of ice with the usual expansion which may do considerable damage to parapets, chimneys, etc., to say nothing of the danger of having the retained water rise above the top of the

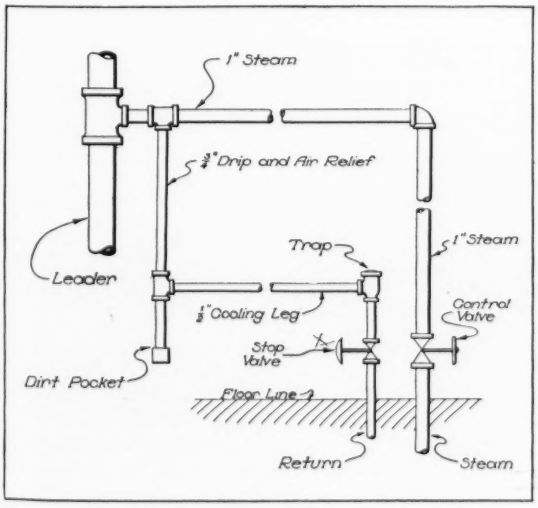


Fig. 3

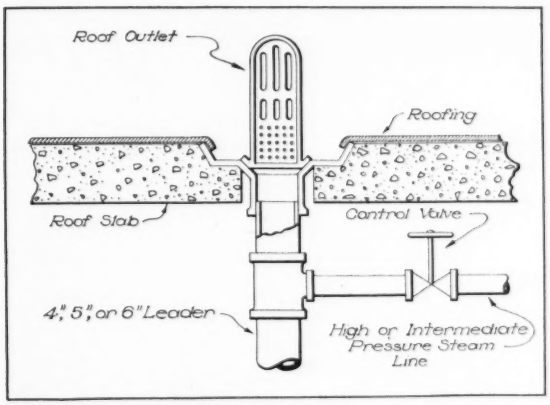


Fig. 1

flashing or force its way through a weak point in the roofing.

Where high or intermediate steam pressure is available, a steam connection made to a tee at the top of the leader in the manner illustrated in Fig. 1 will thaw out the top of the leader almost immediately. Where high or intermediate pressure is not available the building heating lines may be used although the results will not be as immediate.

In using the building heating system it is necessary to provide for the relief of air and condensation as close to the leader as possible because the pressure on the building steam is seldom over 5 lb. and often is not over 2 lb. gauge. A long pipe full of air between the steam line and the leader will have the effect of keeping the steam away from the leader.

An arrangement such as is illustrated in Fig. 2 will

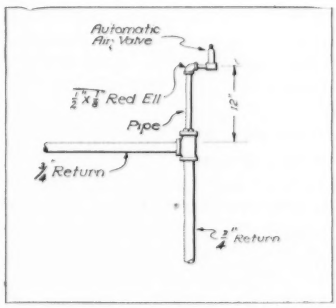


Fig. 4

permit the circulation of steam right up to the control valve, or if it is desired to put the control valve at some other point more convenient for operation the scheme shown in Fig. 3 may be used. Both Fig. 2 and Fig. 3 preassume the use of a vacuum system of steam heating as this is practically a standard for large buildings of a character which would employ a steam connection to keep the leaders open.

If gravity steam is used, a connection similar to that shown in Fig. 3 may be used but with tee in place of the trap and an air valve set up on the top of the tee as shown in the detail, Fig. 4.

The heating of the salon of a new dirigible is now claiming the attention of heating engineers. This is only one indication of the prediction that heating will undergo many changes in the next ten years.

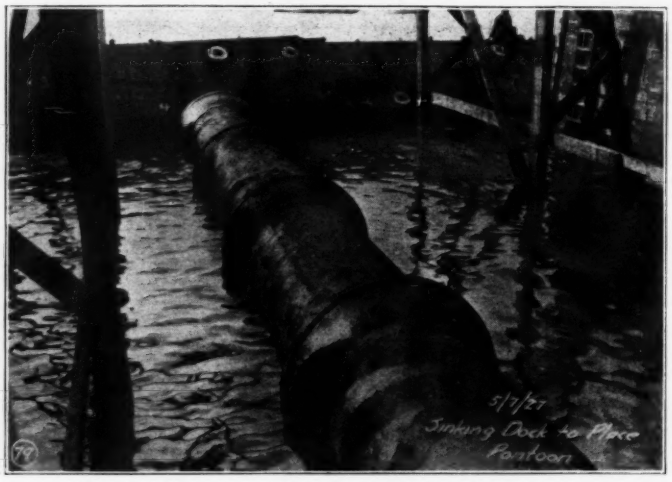


Fig. 1.—Making ready to float pontoon under four sections of 48-inch bell and spigot, flexible joint, cast iron pipe

Honolulu's Water Supply

By GEORGE MELLEN

A GREAT artesian basin ranging from 500 to 1,000 feet below the surface furnishes the people of Honolulu, Hawaii, with their delicious drinking water,—water that is praised everywhere by travelers who have stopped there even for a day. A shaft sunk through the cap rock brings this pure, sparkling clear, healthful water bubbling to the surface. But engineering problems still remain, for Honolulu is a city of 105,000 people, and growing fast.

Honolulu, like Genoa or Marseilles or San Francisco, spreads itself from the water front back and upward into the hills. Only 10 per cent of the people of Honolulu live above the 300-foot level; but of these some live 1,100 feet up, and water must be supplied them at full pressure the same as to the 70 per cent who live below the 100-foot line.

The delivery of water to that portion of the population living between the 300- and 1,100-foot levels has been one of the big problems facing the city's water and sewer commission. It is one of the projects that is now being handled in the expenditure of $3,500,000 by the commission; $2,500,000 more is being expended in the development of the sewage system,—a total of $6,000,000.

There are three central pumping stations in Honolulu, beneath each of which artesian wells are sunk. Each station is equipped with two pumps, a *10,000,000-gallon, cross-compound steam pump, and a 4,000,000-gallon pump. The three 10,000,000-gallon pumps, interconnected to a 24-inch cast iron pipe line, deliver the water directly into the city mains at 80 pounds pressure, serving all of the consumers below the 100-foot level (nearly two-thirds of the city).

The 4,000,000-gallon pumps, which are interconnected to a 20-inch cast iron pipe line and develop a 200-pound pressure, deliver water to the dwellers between the 100-foot and 300-foot levels.

*These figures are based upon 24-hour capacity.

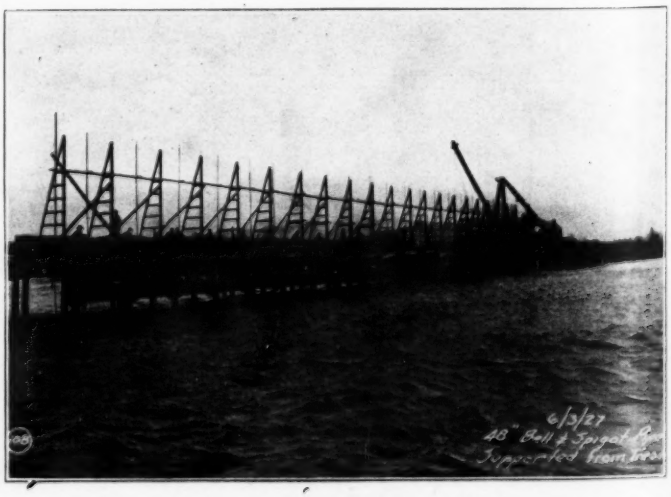


Fig. 2.—48-inch bell and spigot pipe supported from trestle

To get water to the higher levels, a series of motor-driven, centrifugal, booster pumps have been installed. These pumps deliver water at the highest levels at the pressure required by the fire department, which is two streams with a combined force of 500 gallons per minute.

In Honolulu all the water lines lie within three feet of the top of the ground, as the temperature never drops below 62 deg. F. above zero.

Honolulu's Sewage Carried to the Ocean

The larger city sewer mains of Honolulu are 36-inch terra cotta pipe. Being laid at an eight-foot depth, considerable blasting is required, as the formation in the downtown area, which is nearer the ocean, is largely coral. Interceptors which tap the city mains and carry the sewage to outfall are 48-inch cast-in-place, concrete pipe, tile lined.

The city sewage is carried to the ocean by gravity and discharged 3,000 feet from the shore under 60 feet of water where there are strong offshore currents. The sewer outfall is made of 48-inch bell-and-spigot cast iron pipe. It is a ball and socket type, used to prevent strain at the joints when being lowered and to allow for the influence of underwater motion. The sections are machined at the joints to provide as perfect a fit as possible. Each section is eight feet long and weighs six tons.

Fig. 3.—Twenty sections of 48-inch bell and spigot flexible joint pipe being lowered into the water from trestle

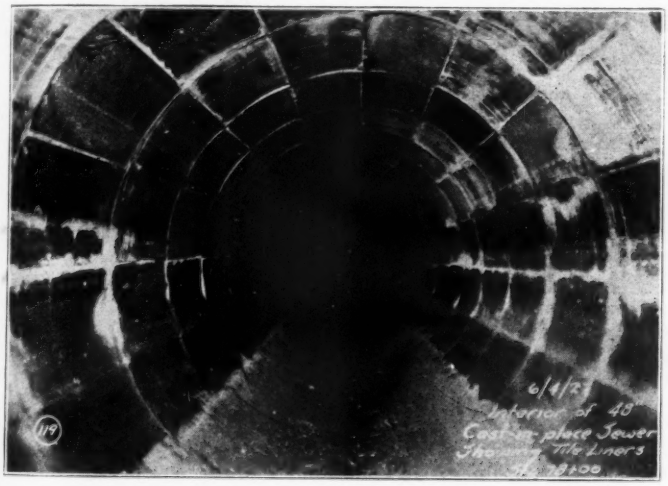


Fig. 4.—Interior of tile-lined 48-inch cast-in-place sewer

The job of laying this sewer outfall was an engineering feat that commands admiration, and one that attracted a good deal of interest in engineering circles as it was a difficult and unusual piece of work. Four sections of pipe at a time were first floated into line on hollow steel pontoons, the entire load, with the pontoon, weighing about 30 tons. When in the proper place beneath the special scaffolding, each section hung suspended by a long threaded rod. After assembly was complete, the long sewer line was slowly lowered into the water, 20 sections at a time. Twenty sections of 48-inch cast iron pipe, measuring 160 feet long and weighing in the neighborhood of 120 tons, sank slowly into the sea as one piece. Months of preliminary work had been necessary, such as dredging to prepare a suitable resting place, and the construction of a sturdy scaffolding that would support the tremendous weight of the pipe as it was lowered. When all was "set," a man was stationed at each rod with a wrench. Then the entire crew, moving as one man, lowered the pipe to a measured cadence which was marked off by the regular blasts of a whistle. At each blast each workman gave his wrench a half turn, lowering the pipe slowly and easily and without strain to the joints. Wrenches clicked in unison, hour after hour, until finally the big pipe found its resting place below the water. During the process, divers went down at intervals to make sure that all was going well, and assistant engineer R. S. Mowry himself went down a number of times to inspect each stage of the important work.

The completed sewer line, including the land section of the project, from the start of the Nuuanu stream crossing at School street to the end of the outfall, is 14,000 feet long.

Few cities which have the ocean or an inland lake for sewage disposal, dump their sewage so far from the shore line as does Honolulu. It is declared that within an hour from the time that a given amount of sewage leaves the mouth of the ejector pipe, the rapidly flowing deep-sea currents at that point have carried it from three to four miles out to sea.

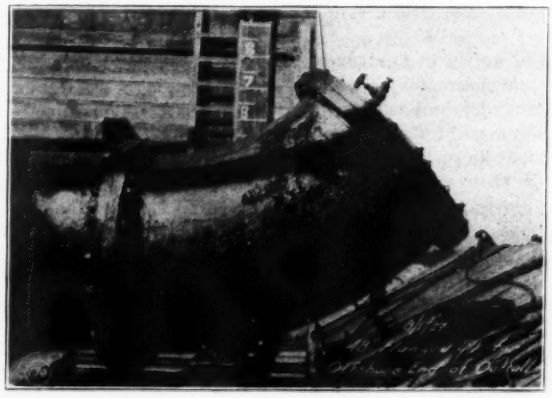
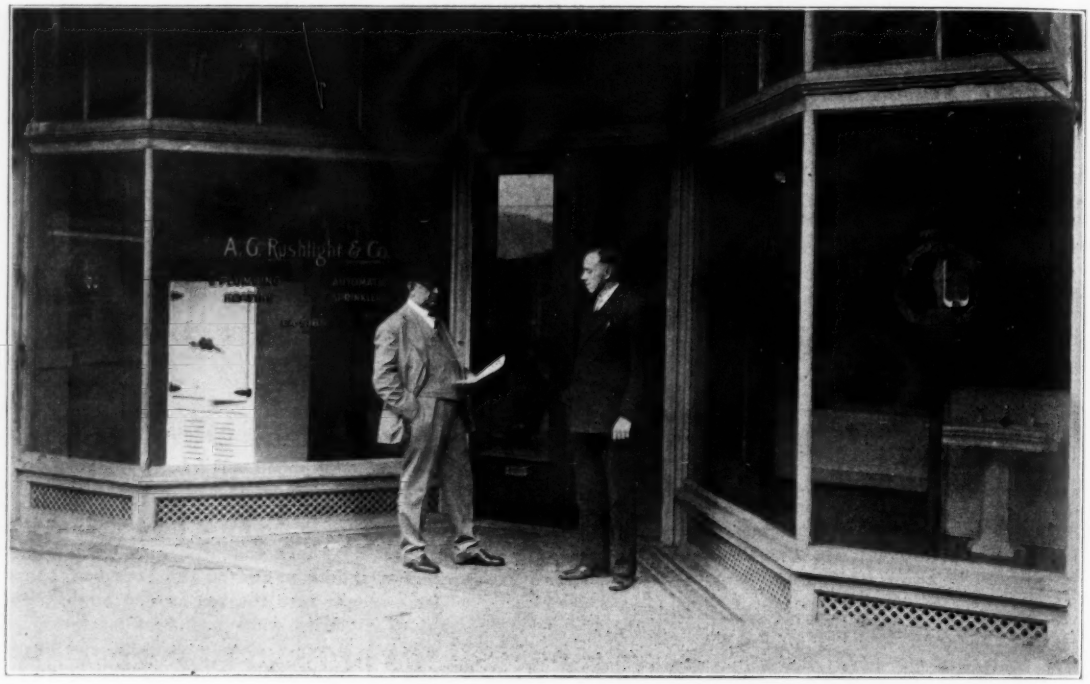


Fig. 5.—48-inch flanged ell for offshore end of outfall. 36-inch vitrified pipe at Nuuanu stream crossing



A. G. Rushlight and his son outside their store

Permanence

The Sales Manager finds the quality of permanence in plumbing and heating

THE wise sales manager looks for permanence in his retail outlets. Obviously it's impossible for him to visit every retail store in the country, even in one industry. So he must start with general considerations. If he has a product which might conceivably be marketed through one of several types of retail stores, his choice must be made on the basis of general considerations of the industries involved, as well as on the basis of detailed investigations in a sufficient number of stores to arrive at an accurate conclusion.

One of the first things which had notice in our consideration of the plumbing and heating contractor as a possible outlet, was the traditional nature of the business. It has its roots back in the old guild days of England and the continent of Europe, when men chose their callings with more deliberation than we do these days.

I do not know that there is another industry with which I have come into contact which shows so noticeably the working of the father-to-son idea. That makes for permanency. Then, too, there is the long period of apprenticeship to the craft, followed by the days as a journeyman. A man who has invested that much time in a business is apt to be a permanent member. When he unites to his sound knowledge and long experience, the qualities of leadership and business ability, you have a type of retailer to "tie to" with perfect confidence.

HE REFUSED TO GIVE UP

IN THE course of our investigations we gathered a number of interesting stories of men who had made a success of it in one line or another. These stories grew out of the plumbing and heating field as being one representing most favorable opportunities for securing the results we desired.

The remarks concerning permanence apply particularly in the case of A. G. Rushlight, of Portland, Ore. In the first place, it seems apparent that when he decided to go into the plumbing and heating business he did not permit himself to be discouraged easily. After he had worked for seven years getting a start and mastering the mechanics and methods of the trade, he hit a snag.

"Then panicky times came on," he said, "and for several years it was almost impossible for anyone to get a position at the trade. Men were working for three dollars or three and a half a day, and some at even less than these figures."

He made the weary round of all the shops in Portland. No jobs to be had. If, then, he couldn't get a job, he'd

have to put himself in a position where he would be the master—he would be the man who got the job from those who had work to be done. That meant that he would need capital.

So he went to work as a section hand at less than two dollars a day, and at the end of the month he had saved up thirty dollars. That and his kit of tools were his financial investment in business. The other qualities seem to have been there—a man who would find himself refused a job in every shop in the city and then decide to open up a shop of his own certainly didn't lack courage. He was under the legal age as yet, so he couldn't get credit. He had to work on a cash basis for some months until he could establish a connection. His great care at the outset was to meet his obligations promptly—he never abused his credit privileges.

"I never watched the clock," he said. "I was on the job early in the morning and late at night. As long as there was anything to do I never thought of going home until it was done."

His first year's business amounted to $2,000. He has long since passed the half-million mark, and from the days when he did his own unskilled labor, he has traveled far.

THIS is a little different type of story than the Sales Manager has been telling. It is true that for the most part these stories are aimed at offering practical merchandising help. But there are other considerations, less tangible, perhaps, but none the less important, and the Sales Manager wisely felt them to be worthy of consideration. He has much to say of prime interest to those whose products are marketed through the plumbing and heating contractor.

BUILDING ON SOUND FOUNDATIONS

THROUGHOUT his experience this idea of permanency, it seems to me, has been back of everything he did. He never wavered in his intention to get into plumbing and heating. Once in, he held to no short-sighted viewpoint. He began to build up his credit on a sound basis. Obviously he has been operating on a proper margin or his business would not have grown. To carry on the business he brought into it his son, Willard, who went through high school and had some college work in the essentials of his future business. Mr. Rushlight understood the business, and saw such possibilities for trained young men that he offered his son every encouragement. Responsibility was delegated to him as fast as he could take it. Today he is head of the plumbing department and Mr. Rushlight looks forward to the day when his son will be prepared to take over the entire management.

Some further evidence of Mr. Rushlight's determination to "stay put" in plumbing and heating—and of his keen business ability—is his action at times when work was slow in the old days. He went into the real estate business to keep his plumbing business going. This was accomplished by exchanging work with other men. He would acquire a lot and then would offer to do plumbing work as part payment. He would exchange with carpenters, painters, plasterers and others without a cent of actual cash passing between them.

It has always seemed to me quite natural that plumbing and heating contractors should engage in civic activities. Their work is of a civic nature; at every turn they must comply with city regulations in the all-important matter of health; they know the weaknesses and the strength of the codes under which they must work; they are the logical men to work out the necessary improvements.

When Mr. Rushlight turned his attention to civic matters, he did as unusual a job as he had with his business. Once again that idea of permanency is back of all that has characterized his efforts as a public official. He does not seem to be capable of holding a short-sighted viewpoint.

From 1905 until 1911 he served in the city council. From 1911 to 1913 he served as mayor of Portland, twenty-fourth city of the United States by the census of 1920. Three times he has been elected to the state legislature and has been an untiring worker in the interests of proper sanitary codes. While the last one, enacted in 1925, does not fully meet the needs of the industry, Mr. Rushlight feels that it is a good basic code on which to improve in further legislative sessions. This code brought forcibly to the attention of the public the need of rural sanitation in a way not before attempted by the plumbing industry.

As mayor of Portland, he is said to have accomplished more than any preceding official. Under his administration 40 per cent of the city water mains were laid, two reservoirs built, six playgrounds and a free dental clinic for children established, twenty fire houses were built. These are some of his activities—all, be it noted, of a permanent nature and value. And all that he accomplished he lays to his background of technical knowledge obtained in his business life.

His efforts for a state code were on a broad basis—he sought adequate protection for the public. For instance, one of the principal points for which he strove was the inclusion of adequate measures covering a stricter supervision of districts outside the towns and cities with regard to plumbing requirements. As he pointed out, a city like Portland was menaced by possible disaster by epidemic because of poor installations and inadequate inspection in houses just outside the city limits. A disease germ, he said, was no respecter of city boundaries, and what distinguishes good plumbing from bad in the records at the courthouse is unceremoniously disregarded by the germs which breed in insanitary outlying districts.

CHANGING WITH THE TIMES

IN THE thirty-five years that Mr. Rushlight has been in business he notes some outstanding changes. Heating and ventilating have become an important part of the trade, this change being pronounced in Portland about 1905. Automatic sprinkling has proved a necessity through the mammoth structures and fire hazards occasioned by congestion as the city grows. This latter is a big feature in the A. G. Rushlight & Co. business.

Just recently this company has taken the exclusive agency for a nationally advertised refrigeration system. This addition to the Rushlight business was made in accordance with the prevailing policy of Mr. Rushlight to keep abreast of the times in every way. He feels that installation of automatic refrigeration is specifically allied with plumbing and heating, and his company has already installed many of these machines in new apartments.

Mr. Rushlight owns the large building in which his establishment is located. A capacious warehouse, shops and offices are included, besides the display room which extends back from the windows. An interesting fact is that this ground where the present building now stands was the site for the first log cabin in the city of Portland.

The volume of business of the firm of Rushlight, Hastorf

(Continued on Page 49)

Fundamental Principles of Gravity Circulation

By HAROLD L. ALT

IN ALMOST every discussion of heating and ventilating problems the matter of gravity circulation turns up either sooner or later and the more or less mysterious action of this invisible agent is studied to explain the movement of certain fluids and gases. Gravity circulation really means "continuous movement" induced by a difference in weight. Movement due to difference in weight is a very common occurrence,—a stone sinking in water, a leaf falling to the ground, steam rising in the air,—all are movements resulting from differences in weights. But they are not continuous.

"Circulation" implies a forward and return movement, an outward and backward current, a supply and return flow. Witness, the circulation of the blood, the circulation of money,—the circulation of a hot water system.

Following this thread of thought, it will be seen that gravity circulation must be a supply and return flow induced by weight or gravity. It is the difference in weight which causes the hot gases in a chimney to rise and the cold air outside the chimney to fall and enter the chimney at the bottom. It is the difference in weight which makes hot water rise and cold water settle when they are both confined in the same container such as a hot water boiler.

GRAVITY CIRCULATION IN A CHIMNEY

THE ORDINARY chimney has an action so well known as to make it serve as a particularly good means of illustrating gravity circulation. The gases in a chimney may be 500 degrees F. in temperature while the air outside of the chimney may be anywhere from zero to 100 degrees F. It never even approaches the temperature of the chimney gases. For this reason the gases in the chimney are expanded to a greater degree than the outside air and, therefore, are lighter.

In Fig. 1 a diagram of a chimney is shown and it will be seen that this chimney contains a column of hot gas 75 feet high and at an average temperature of 500 degrees F., whereas outside of the chimney is the ordinary atmosphere at, say, 60 degrees F. The motive force generated by two quantities of gas is dependent on the relative differences in temperature between the two columns and on the height of the columns but not on the areas involved. The difference in weight (per square inch or per square foot) is the same in a 1 foot diameter chimney as in a 10 foot diameter chimney all other conditions being equal. Therefore the fact that the hot gases in the chimney, having a certain diameter and a fixed area, does not affect the draft even when compared with the whole outside atmosphere whose area is infinite.

Draft in a chimney depends, then upon the difference in temperatures between the gases inside of the chimney and the air outside of the chimney. To produce and maintain such temperature differences some means of heating the gases in the chimney must be employed. Usually this means a fire, the hot gases from which pass into and upward through the chimney.

When the Draft Is Down Instead of Up

Without a fire there is no real draft in a chimney outside of that induced by the wind or other outside conditions. In summer, when the fires are out, it is not uncommon to find chimneys with a reverse draft; that is to say the air is coming down the chimney instead of flowing up through it. Everyone knows how difficult it often is, when a fire is first lighted in the fall with a cold chimney, to get the draft started but after it is once started the interior of the chimney is warmed up and helps to maintain the draught all the rest of the season.

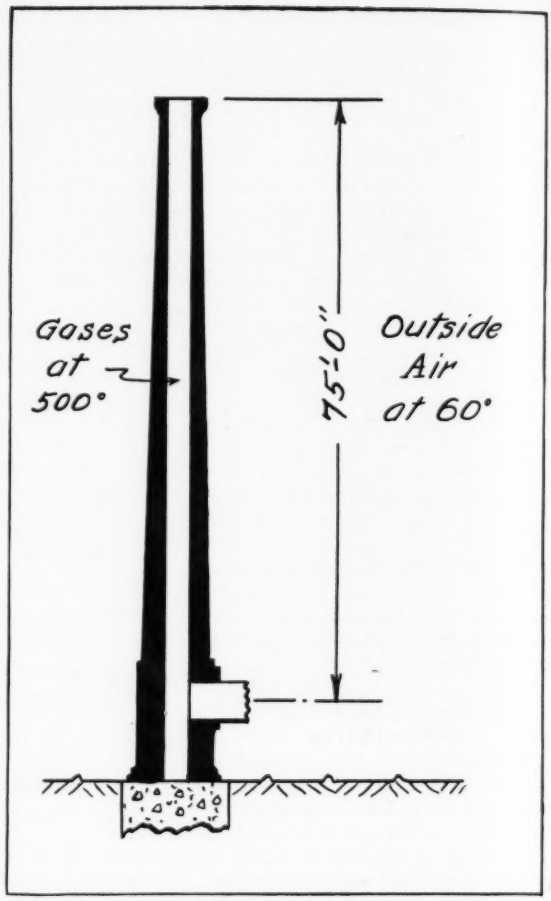


Fig. 1

Practically all the force tending to produce gravity circulation or "draught" in a chimney is expended in friction. As soon as gases begin to move upward in the chimney they also begin to rub on the side of the chimney. There is also an additional rubbing effect on the inside of the breeching and in passing through and around the various gas passes in the boiler. There is also the fire bed which introduces a very large resistance to the passage of air.

These frictional losses begin at zero, when there is no movement of gas, and increase until the movement of gas through the fire, boiler, breeching and chimney produces sufficient friction to equal the circulation motive force. It will be seen from this that "draught" is nothing but gravity circulation. In cold weather when the outside air temperature is low the draught in a chimney becomes better because the temperature differences between the stack gases and the outside temperature are greater, while in hot weather the draught is less because the outside temperature is approaching the chimney temperature and it already has been shown that when the two temperatures are equal there is no draught.

Draft is also affected by the height of the column of

gases. In other words, if a column of hot gases 50 ft. high weighs a certain amount less than an equal amount of cold outside air, then a column of hot gases 100 feet high would have a greater difference in weight when compared to the cold outside air which difference on the 100 foot column would be just twice as great as on the 50 foot column, all other things being equal.

There is also a certain relation between chimney area and chimney height. It has been seen that the gravity circulation set up by filling a chimney with hot gases is

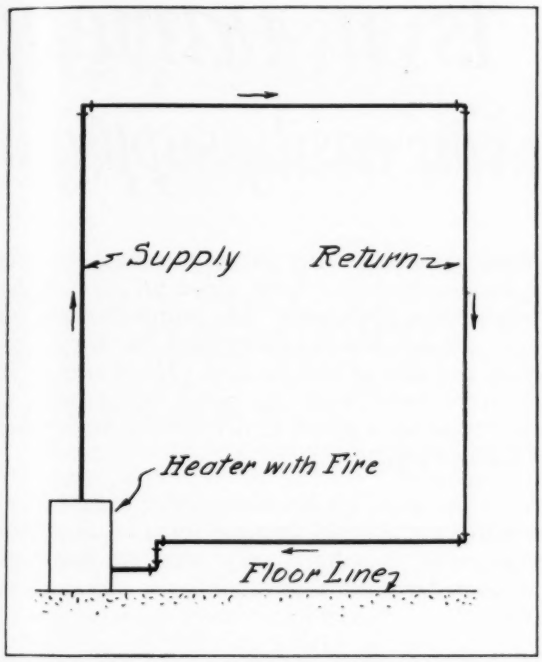


Fig. 2

used up in friction, and that this friction is made up from the friction in passing through the fire bed, the friction in passing through the boiler, the friction in passing through the breeching and the friction passing up the chimney.

Only a portion of the total friction is developed in the chimney and, in cases of a low chimney where sufficient draft intensity does not exist to permit a large friction loss in the chimney, it should have the diameter increased so that as little friction is created in the chimney itself as possible. While the chimney friction can be reduced it cannot be eliminated for, as long as there is a movement of gases in the chimney, there will always be a certain amount of friction developed.

From this it will be seen that, while increasing the area of a low chimney will reduce the friction leaving more "available" draft for the fire, this increase in area will never create a greater intensity of draft than the height of the chimney can theoretically produce. To put it another way, the draft of a chimney 50 feet high could never be made to equal in intensity the draft of a chimney 100 feet high, provided that the 100 foot chimney had a proper and sufficient area to begin with.

GRAVITY CIRCULATION IN HOT WATER SYSTEMS

GRAVITY circulation in hot water heating systems (when they are not of the forced circulation type) is produced by forces similar to those that produce chimney action. In a chimney, the expansion of the hot gases produces a lesser weight of gas per cubic foot than in the outside air. In the hot water system the expansion of the heated water in the supply line is greater than when the water has been cooled down to the temperature of the return line and consequently the hotter water weighs less per cubic foot and tends to rise while the return water weighs more and tends to settle down into the lower portion of the system.

To maintain this action it is necessary to heat the water at the bottom of the hot water system so as to prevent the supply line growing cold and the circulation from ceasing. When heat is constantly supplied to the returning cooled water so that it is reheated before entering the supply line the circulation or flow becomes continuous. (See Fig. 2.)

Average Temperature

Where water is confined in pipes of ordinary size, the average temperature of all the water in the vertical supply must be plotted against the average temperature of all the water in the return line to determine whether circulation will take place or not. If the average temperatures of the two verticals is the same, or nearly the same, circulation need not be expected because a very small amount of movement in the water will set up enough pipe friction to counteract the tendency to circulate so that every time the circulation is inclined to build up any speed, the pipe friction acts like a brake and chokes it off. On the other hand, with a big temperature difference or a very high vertical column, the unbalanced weights of the two columns is increased, which increases the motive power, and

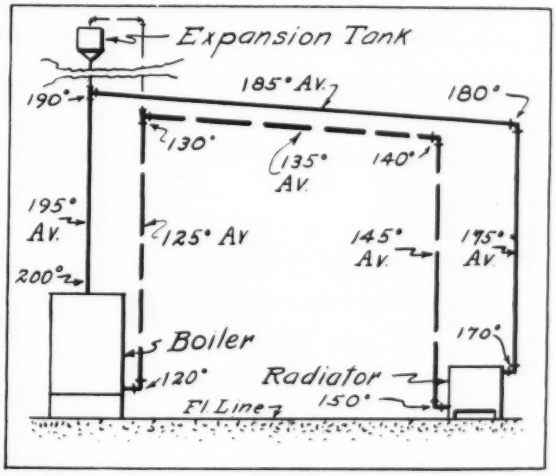


Fig. 3

a larger amount of pipe friction can be built up before the circulating motive power is counterbalanced.

This establishes the principle that an increased average temperature difference or a higher column of water tends to accelerate the circulation while a lesser temperature difference or a lower height of water column tends to decrease the circulation.

Overhead Hot Water Mains

Owing to the principle of "average" temperatures, it is possible to circulate hot water to radiators below the level of both the horizontal supply and return horizontal mains as shown in Fig. 3. This circulation is quite paradoxical when viewed in connection with the drops to the radiators but is absolutely reasonable when the risers from the boiler are considered as forming part of the circulating system as they really do.

To make calculation easier and simply as a demonstration of the principle it will be assumed that there is a

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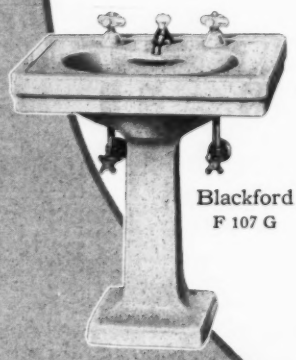

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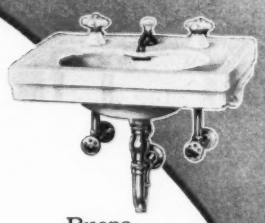
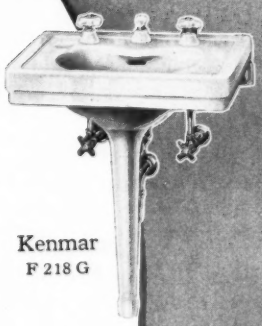


Buena
F 327 G



Kenmar
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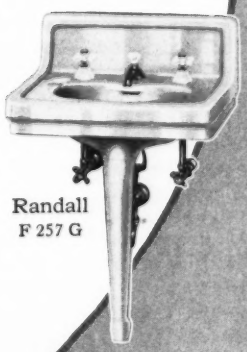

Randall
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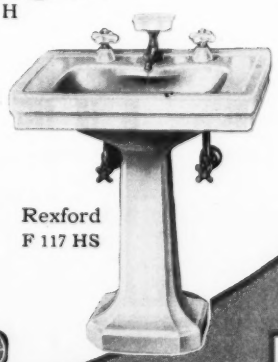

Rexford
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Marlboro
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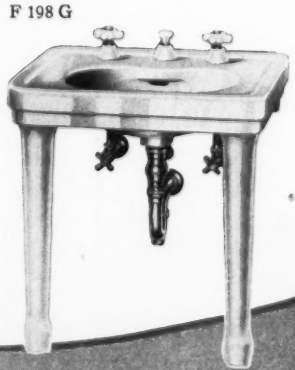


"Standard"
PLUMBING FIXTURES

10-degree drop in the riser from the boiler up to the horizontal main, a 10-degree drop in the horizontal main, a 10-degree drop in the pipe down to the radiator, a 20-degree drop in the radiator, a 10-degree drop in the riser up to the main, a 10-degree drop in the horizontal return main and a 10-degree drop in the vertical return to the boiler.

As shown in the drawing, if 200-degree water is leaving the boiler the average temperature of the boiler supply riser is

$$200 \text{ deg.} - \frac{10 \text{ deg.}}{2} = 195 \text{ deg.}$$

and the temperature of the water entering the horizontal supply main will be

$$200 \text{ deg.} - 10 \text{ deg.} = 190 \text{ deg. F.}$$

In the supply main there is also a 10 deg. F. drop in temperature so that the water delivered to the top of the supply riser to the radiator will have a temperature of 190 deg. — 10 deg. = 180 deg. F., and the average temperature in this line is

$$190 \text{ deg.} - \frac{10 \text{ deg.}}{2} = 185 \text{ deg. F.}$$

The temperature of the water delivered to the radiator is 170 deg. F., so the average temperature of the drop is

$$180 \text{ deg.} - \frac{10 \text{ deg.}}{2} = 175 \text{ deg. F.}$$

Water leaving the radiator is 160 deg. F. and by similar calculation the average temperature for the radiator will be

$$170 \text{ deg.} - \frac{20 \text{ deg.}}{2} = 160 \text{ deg. F.}$$

By similar figuring it will be found that the average temperature of the return riser from the radiator is 145 deg. F., the horizontal return main, 135 deg. F., and the return drop down to the boiler, 125 deg. F.

Looking at the two drops supplying and returning from the radiator it will be seen that the average temperature in the supply drop is 175 deg. F., and in the return drop 145 deg. F., which would lead to the assumption that the supply riser is hotter than the return riser and that the flow, therefore, would be down in the return riser and up in the supply riser. In other words, the circulation would be reversed. See Fig. 3.

This viewpoint is incorrect and leaves out of consideration the two risers at the boiler. Taking the supply system in toto it will be seen that it consists of two risers,—one from the boiler to the ceiling and one from the ceiling down to the radiator,—while the horizontal run makes little difference in the circulation beyond adding a little friction, the vertical legs are very important factors.

In fact the whole matter of gravity circulation is dependent on the vertical columns of water and the difference in temperatures between those columns.

Taking the supply riser from the boiler to the ceiling it is seen that the average temperature in this column is 195 deg. F., while the drop from the ceiling down to the radiator has an average temperature of 175 deg. F. Thus the drop is colder than the riser and the circulation will be up the riser and down the drop which is just the direction in which it should be.

Now taking the return system in the same manner,—the radiator riser has an average temperature of 145 deg. F., and the drop at the boiler has an average temperature of 125 deg. F.

Thus the return drop at the boiler is colder than the return riser at the radiator so that the flow will be upward in the riser and downward in the drop, also just the way it is desired.

When considered in this manner it is plain that both supply and return systems are arranged so that circulation is tending in the same direction. Both halves of the circuit are aiding the circulation and one half is not opposing the other half as might be inferred from a casual inspection.

Gravity Steam Circulation

Circulation is also a very common term as applied to gravity steam systems. Yet this is not a true gravity circulation. There is a gravity return, that is true. But there is no gravity supply which can be compared by weight with the return. The factor of condensation enters into the matter as well as the consideration that the supply medium is a gas (steam) and the return condensation is a liquid (water).

Gravity steam systems can be operated just as well when the condensation is not returned but is wasted at one or many convenient points and the condensation will return just as well when at the same temperature as the steam as when it is at a lower temperature.

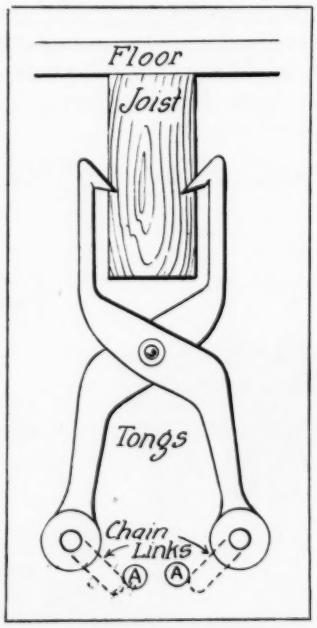
"Gravity" steam systems indicate that the condensation flows back by gravity and without the aid of a vacuum pump but they should never be confused with true "gravity circulation" which is quite a different matter.

Practical Problems—No. 54

A PORTABLE HOIST FOR RADIATORS

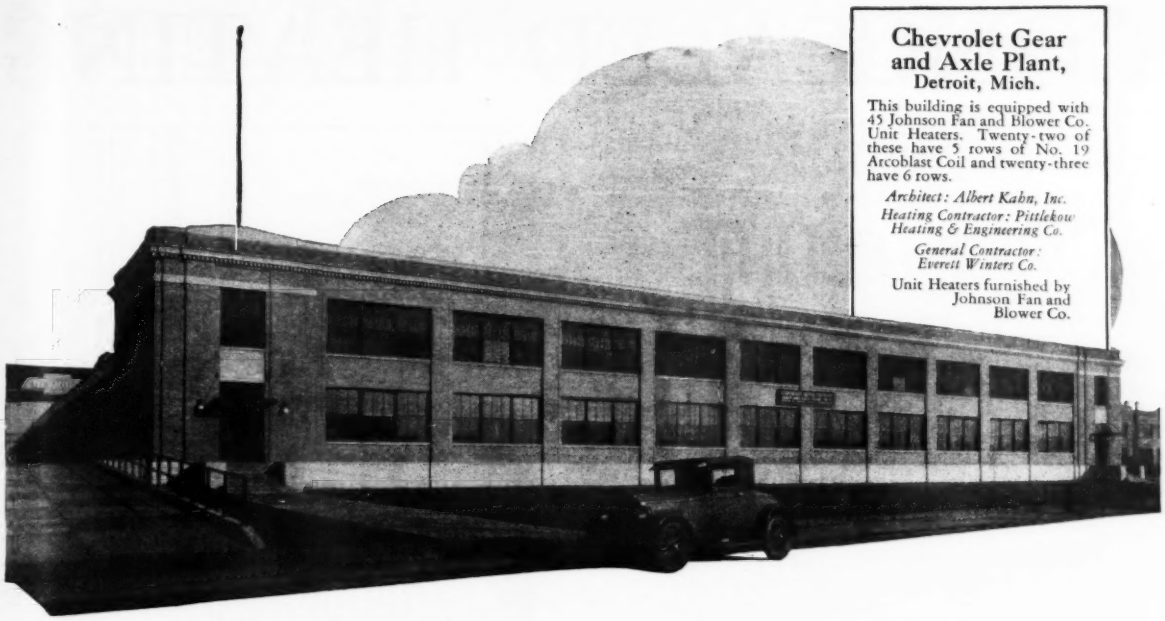
ONE of the readers of "Domestic Engineering" found it necessary to have some portable means of hoisting radiators. At last he devised the method illustrated here which has saved him much time and trouble.

He uses a clamp like the one shown in the illustration.



This is readily fastened to a joist, then a rope or chain block is attached to chain links at the lower end. The heavier the weight, the tighter it will hold to the joist.

At first he used regular ice tongs for this purpose and they worked very well.



Chevrolet Gear and Axle Plant, Detroit, Mich.

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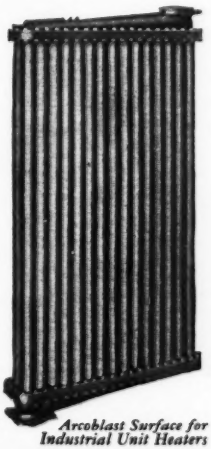

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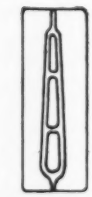
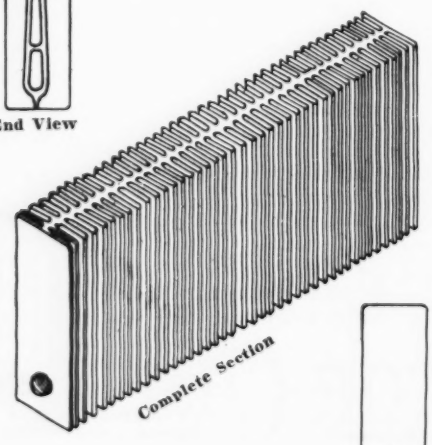
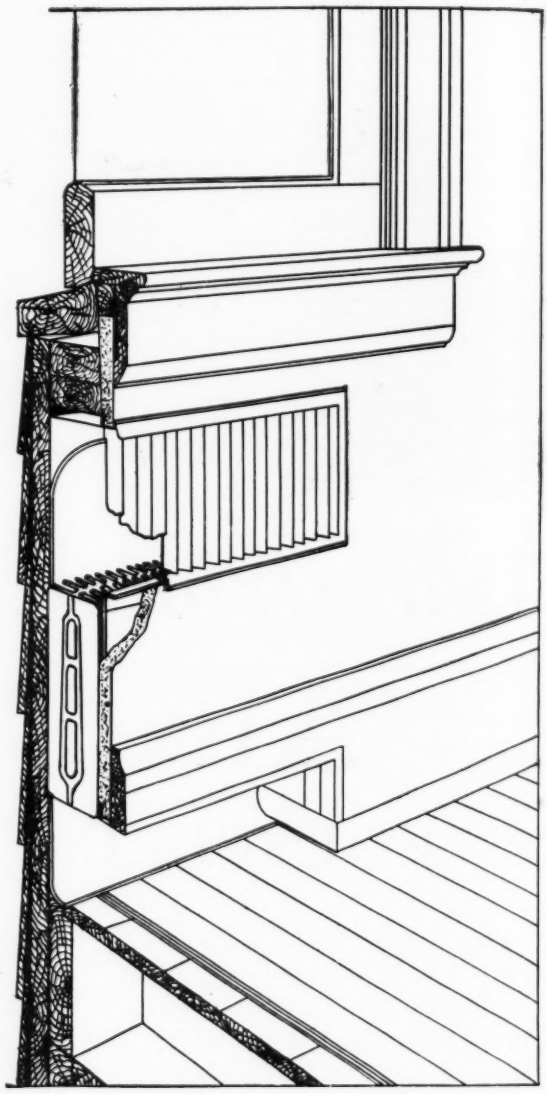


End View



Complete Section

End View



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Sewage Disposal

—*for rural homes in the far south and in the far north*

By R. M. STARBUCK, JR.

THIS is the second of two articles on rural sewage disposal. The first of the two articles dealt with the handling of the problem in Saskatchewan, a Canadian province whose climate is so extreme that all calculations concerning sewage and water supplies have to take account of the fact that in the winter months, beginning as early as October, frost penetrates the ground, finally reaching to a depth of six feet.

It made an interesting study to learn how Saskatchewan has met and overcome the serious practical difficulties surrounding her sewage disposal problems. The matter of temperature was not the only difficult feature—the province is chiefly prairie country with the consequent lack of natural water courses, and what makes the situation even harder to handle, the subsoil is generally a non-absorbent clay.

In this present article, we shall study the situation that exists in Florida, and as might be expected, the conditions are exactly the reverse—a high temperature rather than an extremely low one, and a very porous soil.

Both Saskatchewan and Florida have taken official notice of rural sewage disposal—that is, of the problems that confront detached farm disposal systems, systems for country schools, hotels, etc., and the results of their investigation and experience have in each case been published in pamphlet form, and these reports made readily available to the residents of the province or state publishing them. The two bulletins are unusually thorough and comprehensive, and demonstrate to what extent many of our states are now going in aiding their people to overcome many of the sanitary problems that naturally arise. These problems have of course always presented themselves, but it is impossible for the individual, uneducated in such lines, to solve problems that only a scientifically equipped organization, such as a manufacturer or a state engineering department, is able to handle. In very recent years we have noted the increased attention that states and provinces have been giving to these subjects, to the pollution of streams and of water supplies, to the enactment of plumbing codes, the proper control of rural sewage disposal, etc., and we have wondered whether this may not, in some degree at least, be a reflection of the interest that our national government has been taking in these same subjects, and as indicated especially by the work of the Hoover commission and the wonderful report that was published in 1924.

The first few pages of the Florida bulletin are devoted to a very clear and concise explanation of the operation of the septic tank, but we will not go into this, as the subject has been quite recently considered in these columns.

The real problem, whether in Saskatchewan or in Florida, lies in the final disposal of the effluent of the septic tank, and concerning this we quote from the Florida publication as follows:

"The septic tank merely conditions the sewage for another set of bacteria known as aerobic or oxidizing bacteria, which work in the presence of air and oxygen. These bacteria exist by the millions in the upper soil layers, clinging to the soil particles surrounded by air. Frequently they are referred to as nitrifying bacteria. The discharging of the septic tank liquid into a system of drain tile loose laid at a shallow depth not over 18 inches below the ground surface distributes the tank sewage into the soil occupied by the millions of nitrifying bacteria. These bacteria seize upon the opportunity to oxidize, mineralize and subsequently purify the liquid from the septic tank. This latter process is secondary and completes the septic tank treatment. It is in the upper layers of the soil that purification, both bacterial and chemical, takes place."

Under a discussion of the design of the septic tank, the following appears:

"The general design of the septic tanks discussed in this bulletin is the same, whether installed to serve single homes, school buildings or automobile camps; however, in one particular they differ greatly—in the matter of size or capacity. For instance, a tank having an effective capacity sufficient to handle three hundred school children would only accommodate sixty people living in an apartment house, and possibly one hundred eighty in an automobile camp. Sewage production studies indicate that people living in apartments or dwellings produce more liquid waste daily than children attending a school. Therefore, it is important for you to first analyze your problem and select the size of tank most suitable to your needs.

"Florida experience has shown that a septic tank for residential use should be designed on a basis of at least 50 gallons for each person in the household, with a minimum of 250 gallons sewage capacity for any installation of septic tank. Thus a 250-gallon septic tank will serve a family up to and including five people."

There is considerable food for thought in the foregoing. The failure of many a detached sewage disposal system has been due to an inadequate capacity in the tank, and we are glad to have an official statement calling attention to this situation.

An interesting statement made in the above quotation from the publication we are discussing, shows that in Florida, experience proves it to be necessary to design septic tanks for household use on the basis of 50 gallons of sewage for each inmate of the house. Referring to the article dealing with Saskatchewan, you will find that they base their septic tank capacity on 30 gallons of sewage per person per day. A difference of 20 gallons per day per person is a big difference, but in each instance the figures are based on many years of engineering experience, and so we have to decide that the amount is correct in each case, and that the difference is subject to explanation. Our own idea would be that in a warm climate there is likely to be a greater consumption of water than in a cold climate. For instance, more baths are taken in a warm climate, and here alone a considerable difference is accounted for. Doubtless there are other reasons also.

How far from the house should the septic tank be located? This is a question often asked, and the Florida answer is that, if properly constructed, it might be located

under the house without harmful results, but that for various practical reasons it is best generally not to locate it closer than 5 to 10 ft. from the point where the sewer leaves the house. Such a location will give ample room for the installation of subsoil drains on the average building lot. If available space permits, it is best to locate the tank at a greater distance from the house. If, as often happens in Florida, the ground is low and susceptible to high ground water in the rainy season, it is best to raise the tank as far as possible out of the ground. It is interesting to note that this same practice, if followed in Saskatchewan, would result in absolute failure of the system, as freezing of the entire plant would be sure to result.

When the ground is very level, location of the tank becomes very important, and it is then generally necessary to set the tank close to the house. A fall of ¼ inch to the foot is needed on the house drain, and the closer the tank is to the house, the less the depth is used up in the grade of the drain. The subsoil absorption bed should not be more than 18 inches under the ground, and 12 inches produces much better results. In level areas, therefore, it is clear that the tank has to be close to the house if sub-soil disposal methods are to be used.

An important point is to see that the drain from the house to the tank is so installed that the invert of this drain comes not over 12 inches below the surface of the ground where it enters the tank. The invert, by the way, is the inside bottom of the pipe.

In order to safeguard the water supply, no part of the absorption bed should be closer than 25 feet to any well supply in sandy soil or 50 feet in coral or clay formation.

In this connection, also, the Florida and Saskatchewan practice is quite different, due to difference in soil conditions. Referring to the previous article on this subject, you will find this statement: "In no case should a septic tank effluent be discharged on or into ground within 100 feet of a well or other water supply."

The Florida bulletin goes quite extensively into the subject of absorption beds and their construction, but this subject has been recently covered, and we will not go much into that subject here.

The septic tank should be tight enough to exclude mosquitoes. The upper scum in a septic tank is an ideal breeding place for mosquitoes, and for this reason the tank should be completely covered.

One thing that the Florida bulletin does for the people of the state is to point out the fact that many people, even building contractors, do not understand that there is a difference between cesspools and septic tanks. This situation has resulted in many instances in the installation of a cesspool, when the owner has understood that it was a septic tank that he was getting.

It is pointed out that all of the plumbing fixtures in the house should connect to the septic tank, but that roof drainage and refrigerator drainage should be excluded.

Concerning the trouble occasioned by the presence of grease in the septic tank, the bulletin has the following:

"Considerable trouble is sometimes experienced in the operation of small septic tanks, by the presence of grease, coming from the kitchen or laundry. The grease forms a scum on the surface of the tank and sometimes flows out into the disposal field, clogging the drains. The septic action in the tank has no effect upon grease, so it is advisable to remove it before the waste is discharged into the tank. This can best be accomplished by means of the grease trap.

"Septic tanks serving beach properties are quite frequently found to be partially filled with sand washed into them from the shower bath or bathtub fixtures. The sand particles cling to the bathing suit and bather and, upon taking a shower following a swim, all the sand goes down the drain into the septic tank. A septic tank will not disintegrate sand.

"In installing the grease trap or sand trap, a separate line is run from the fixture furnishing the grease or sand into the trap and the overflow from the trap is then allowed to enter the septic tank, freed from the objectionable grease content or sand."

We do not know whether other states have reckoned with the requirements for the sewage disposal of auto camps, but Florida has gone into the subject and has worked out a schedule for septic tank requirements for auto camps of various sizes.

Florida has done another good deed, in adopting definite regulations governing the manufacture of septic tanks. A few of these regulations are as follows:

"The minimum effective capacity of any tank for residential use shall be 250 gallons to care for 5 people.

"An additional 50 gallons per person shall be added for all over 5 people, provided the maximum capacity of the first chamber of any pre-cast construction shall not exceed 1,000 gallons.

"The minimum effective capacity of septic tanks for apartments and hotels shall be based on the following graduated scale:

"First 5 persons, 250 gallons, plus.

"Forty gallons per person for next 5 persons, plus.

"Twenty-five gallons per person for next 30 persons, plus. Fifteen gallons per person for next 160 persons, plus.

"Ten gallons per person for each person in excess of 200 persons.

"The effective capacity shall be based on two persons occupying each bedroom or other sleeping quarters in any building, provided that the maximum capacity of the first chamber of any precast construction shall not exceed 1,000 gallons.

"The minimum effective depth of septic tanks for apartments and hotels in excess of 1,000 gallons shall be 3 feet 6 inches, and shall have a minimum air space of 9 inches.

"The minimum effective capacities of septic tanks for schools shall be designed on a basis of 15 gallons per pupil.

"Septic tanks for schools in excess of 150 pupils, and for public buildings such as court houses, jails, postoffices, passenger stations, etc., in excess of 1,000 gallons shall be considered as special problems and the location and plans of such installations shall be submitted to the state board of health for approval."

Drainage and absorption beds for septic tanks shall conform with the following:

"Drains shall be of cement, vitrified or agricultural tile, laid with one-quarter inch openings between the ends of pipe. Each joint shall be covered with sections of tar paper, not less than 4 inches by 8 inches, previous to refilling the pipe trench.

"The first 2 feet of said drain line shall be water-tight.

"Drain line shall be 4 inches in diameter or greater.

"Absorption drains shall be laid not less than 2 feet apart, with inverts not more than 18 inches deep in the ground.

"The layout of the absorption beds shall be such that the maximum grade for the drain lines shall not exceed 2 inches per 100 feet, provided all drains shall be laid to uniform grade.

"The minimum drain line for any installation shall be 75 feet. The drain line shall be 75 feet in length for the first 250 gallons tank capacity, and an additional 25 feet for each 100 gallons in excess of 250 gallons tank capacity."

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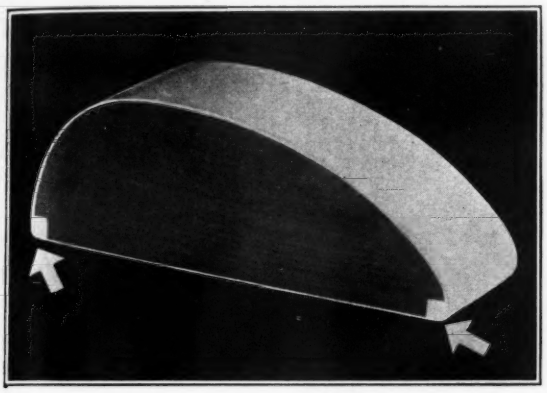
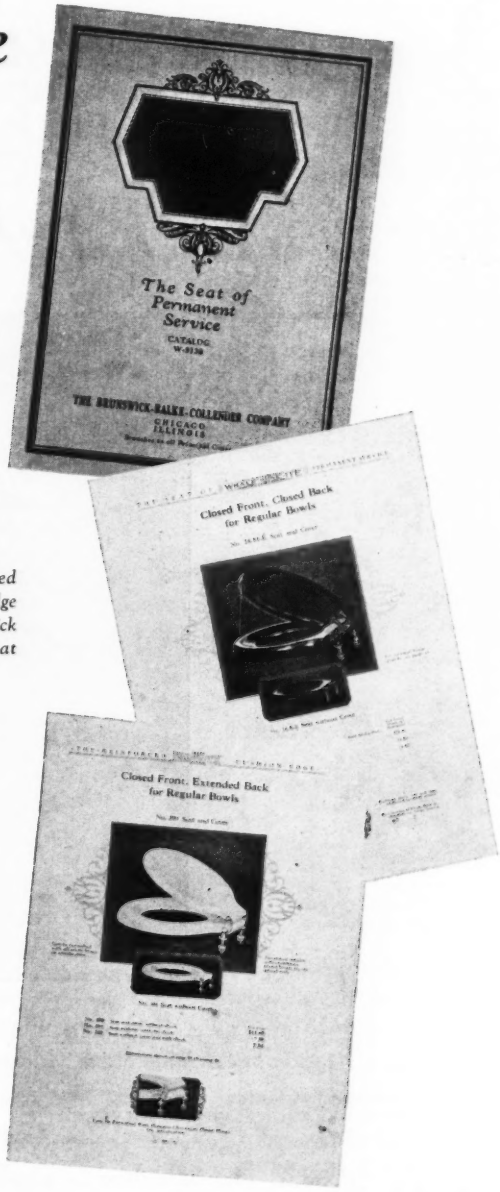


Re-inforced cushion edge of Brunswick White Seat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No other white sheet-covered seat offers you this unique feature. It enables us to guarantee this edge against defects for an unlimited period.

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So, when you sell one Speakman fixture, don't lose an opportunity to sell others. Speakman Showers are exactly matched — in design, pattern and finish — by Speakman fixtures for lavatory and tub. Show every customer how matched fixtures in the brilliant, tarnish-proof Speakman chromium plate will give sparkle and distinction to his bathroom.

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How the Gas Refrigerator Works

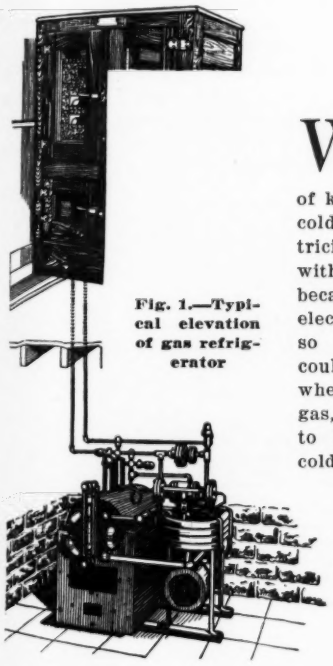

Fig. 1.—Typical elevation of gas refrigerator

WITHIN the past few years we have come to accept the idea of keeping the refrigerator cold by means of electricity. Many accepted it without question, simply because the development of electrical devices had been so rapid that anything could be expected. But when our staid old servant, gas, begins, as if by magic, to keep the refrigerator cold by supplying heat, every last one of us is going to sit up and demand an explanation.

Let us first consider what refrigeration is. "Cold" is merely the absence of heat, and any means of absorbing heat which will lower the temperature to between 40 and 50 degrees will give us the refrigeration we require in the home.

A piece of ice, placed in the ice-box absorbs heat by melting—changing from a solid to a liquid at a low temperature. Certain substances known as refrigerants, such as sulphur dioxide and ammonia, absorb heat by vaporizing—changing from a liquid to a gas—at a low temperature. If, then, we can permit this refrigerant to vaporize inside the chamber we wish to cool, and then change it back to a liquid outside of that chamber, we will have continuous refrigeration.

The electric machines accomplish this job by means of a compressor driven by an electric motor. The refrigerant is put under a high pressure in the compressor and it will then turn to a liquid at ordinary room temperatures. This liquid is then carried by a pipe to the freezing unit inside of the refrigerator, where the pressure is reduced by a valve. As the liquid refrigerant passes the valve it vaporizes, takes up heat in so doing, and cools the box. The refrigerant, which is now in the form of a gas, is returned to the compressor through another pipe and the circulating operation repeated.

The gas refrigerator makes use of a small boiler to raise the pressure of the refrigerant, so that it can be changed back to a liquid at ordinary temperatures. The major steps in the cycle of the gas-fired refrigerator are as follows:

Ammonia dissolved in water is placed in the boiler and heat, from a gas flame, applied. The ammonia is driven out of the water as a gas under pressure, and is then condensed to a liquid. The liquid flows to the freezing unit and is vaporized, taking up heat and cooling the box.

The ammonia, now in the form of a gas, is absorbed again in cold water and flows back to the boiler.

At the present time the operating cost of the gas refrigerator is slightly higher than the electric, although less than the cost of ice. The gas refrigerator, however, has no moving parts, which means that few repairs will be necessary.

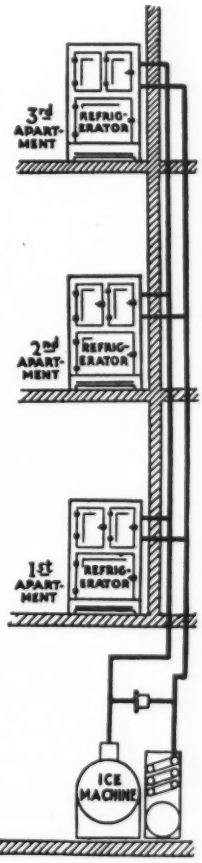

Fig. 2.—Gas refrigerating equipment for a three-story building

NOW STUDY THE DIAGRAM

HAVING read the foregoing explanation, now study the diagram showing the principal parts of a gas refrigerating machine.

The "generator-absorber" "A" contains "aqua-ammonia" (that is, water and ammonia). It is the same kind of solution known all over the world as "household ammonia" and familiar to every housekeeper. For our purpose the percentage of ammonia is greater.

A gas burner H is located under the "generator-absorber." The heat from this burner causes the ammonia in the liquid to become vapor.

This vapor passes along to the "condenser" B, where it is cooled by circulating water. Under this treatment the vapor becomes liquid and flows down into the "receiver" "C."

This process continues until a sufficient quantity of the ammonia has been "vapor-

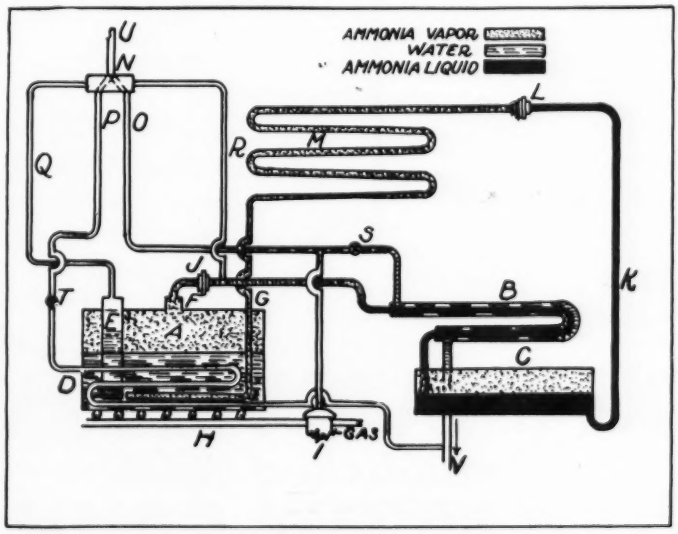

Fig. 3.—Diagrammatic sketch of an ice machine

SIMPLEX FLUSH VALVES

University of Buffalo, Buffalo, New York
Architects: Cyrus Porter & Sons
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Simplex Flush Valves are ideal for public and semi-public buildings.

The four way by-pass arrangement enables valves to be adjusted readily from the outside.

Handle may be adjusted and locked in any position desired.

Ask your jobber to supply Simplex Flush Valves on the next job. You will see at once why they are superior.

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ized" out of the aqua-ammonia in the "generator-absorber."

The circulating water is then automatically discontinued in the condenser, and diverted to the cooling coil of the "generator-absorber," and the gas is automatically turned out.

When the "generator-absorber" has cooled down to a predetermined point of temperature, the liquid ammonia refrigerant commences to pass from the "receiver," through the expansion valve into the expansion coil, "G" and "M."

This coil is located in the ice chamber of the refrigerator itself.

The evaporation of ammonia gas, from this liquid, draws the heat from the refrigerator and its contents.

Cold is merely the absence of heat. This process of drawing out the heat creates a perfectly dry cold atmosphere in the refrigerator.

The spent ammonia gas then passes back to the "generator-absorber"—(which first generated the gas, and again, when its work has been accomplished, re-absorbs it). Thus the whole process of refrigeration has been completed, matters stand where they were in the beginning. The "generator-absorber" is again in readiness to repeat the operation which is automatically done as often as is necessary to provide the refrigeration required.

QUESTIONS

ASKED BY READERS AND ANSWERED BY EXPERTS

WHICH PLUMBING LAYOUT IS CORRECT?

Editor, "Domestic Engineering":—I would like to get your opinion on the two layouts which are shown herewith. Fig. 1 is a layout of a 1½ inch galvanized waste and vent on a combination sink and tray.

The plumbing inspector said that the connection was wrong, and he insisted that it would be necessary to change it and install it as shown in Fig. 2.

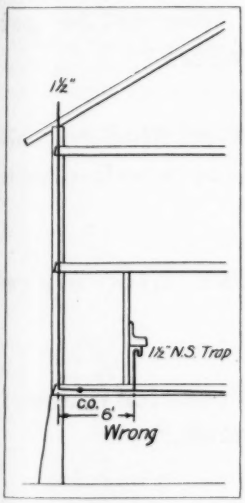

Fig. 1

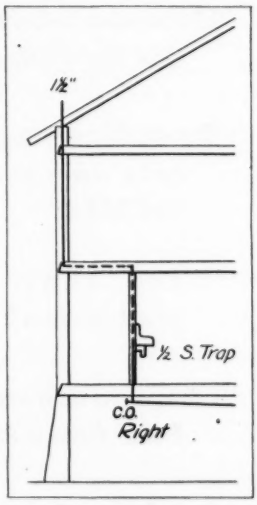

Fig. 2

The plumbing ordinance does not state how the vent should be run.

The inspector claims that the waste pipe will in time be filled up and plug the vent and thereby leave the trap unvented.

Some of the plumbers do not agree with him. What do you think?

It is my opinion that the inspector is right.

Massachusetts. B. B. B.

The plumbing inspector is right. Fig. 1 is not an approved method of installing waste and vent pipes. Past experience has shown that, in similar installations, the back wash in the waste pipe soon fills the vent pipe and it ceases to become a vent pipe.

Fig. 2 shows the approved continuous waste and vent system of piping, the logical successor to the old time vent installation which had to pass out of the picture because plumbers found in thousands of cases that these vents had become filled with back wash and scale and were no longer acting as vent pipes.

Even with the so-called vent line in Fig. 1 open, a heavy discharge of water in the fixture would cause the siphonage of the water in the trap, thereby permitting sewer gas to enter the room through the trap.

THREE PLUMBING QUESTIONS

Editor, "Domestic Engineering:"—Kindly answer the following questions in an early issue:

1.—How would you know, if a well or pit is full of gas, and how can you overcome it?

2.—Is it the amount of water or the depth of seal that gives greater resistance to siphonage?

3.—What are the three essentials that a trap should possess?

Pennsylvania. A Subscriber.

1.—Gas is usually detected by its odor, but some gases have very little odor and for this reason a man should never enter a pit where there is the least danger of gas, without having some one close at hand to render aid should it be required.

Some gases can be removed from a pit or basement by suction.

Many city fire departments have "smoke machines" for this purpose, but in many cases the only solution is plugging the source of supply.

Gas masks offer a means for getting close to the seat of the trouble without undue danger.

2.—It is the amount of water.

3.—It should have a safe water seal, be non-siphoning and self scouring, and it should be provided with an accessible clean-out plug.

The Plumbing Primer

"Get off of my corn, Le-roy. What has hap-pen-ed here?"

"Be si-lent, Wil-bur-force. The bank tel-ler has faint-ed."

"What caused the gen-tle-man to faint?"

"A fear-ful shock, Wil-bur-force."

"What was this shock, Le-roy?"

"A Mas-ter Plumb-er de-pos-it-ed a thous-and dollars."

"Hea-vens a-bove! How did he get the thous-and dollars?"

"By sell-ing Im-prov-ed Mad-era toi-lets in-stead of wash-down toi-lets."

"Does that make him more maz-u-ma?"

"I hope to drown an ost-rich it does! Four times as much."

"Catch me, Le-roy, I feel faint."

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A QUESTION OF VENTING

The sketch shown in the accompanying Fig. 1 has been submitted by Emil A. Walstrom of Minneapolis, Minn., who asks us to explain why the peculiar vent that is used for the bathtub should not be passed.

Before going into the subject of the acceptability of the vent itself, we want to make some general observations concerning the work.

Often if one had the privilege of looking over the

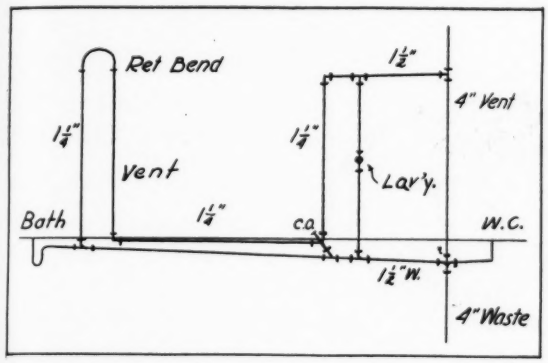

Fig. 1

actual work, his judgment might be entirely different than when judgment is passed through correspondence.

Quite often venting of this general nature is used for fixtures that are at the center of a room or considerably removed from any side wall or partition. Barber's lavatories make use of such venting frequently.

However, the bathtub is not a fixture that is ever installed under such conditions, and we have almost never seen the fixture installed where it was not set against a wall or partition, or in a corner. Under such conditions it would generally be possible to carry a vent up through the wall or partition in the usual manner. Often, to be sure, owing to location and construction, the vent

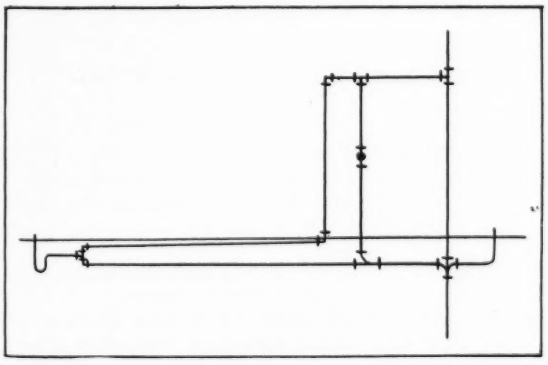

Fig. 2

might have to be carried above the ceiling and across to a main vent line.

If the bathtub vent could be put in as described above, there would be no excuse for using such a method of venting as in Fig. 1, in which case we feel that the work should not be passed.

It will be understood that the connection of the vent back into the horizontal waste line is for the purpose of draining condensation out of the low part of the vent.

If the conditions that exist justify the use of this form of venting, however, what can be said for or against it?

We have already intimated that it is used quite generally, but, so far as we know, its use is confined to fixtures such as lavatories, which have their traps above the floor. This latter condition puts an entirely different light on the subject, and makes the use of such a vent a necessity under certain conditions, unless the use of an unvented non-siphon trap is allowed.

The Wisconsin State Plumbing Code, by the way, commends the use of this type of vent, and shows an illustration of it under the name of loop vent.

In Fig. 2 we show the method that we would advocate for installing this vent. If the horizontal part of the vent can be run as shown in Fig. 1, we would suppose there would be no practical difficulty in the way of running the Fig. 2 vent. A further recommendation would be to use a drum trap instead of the P trap.

We trust the foregoing will cover the question with sufficient clearness.

CARE OF ACETYLENE CYLINDERS USED IN WELDING

Precautions to be observed in handling acetylene follow from a few well-known properties of this gas:

1. Acetylene will burn and will under certain conditions form explosive mixtures with air.

2. At pressures over 15 lb. per square inch, acetylene may decompose violently if subjected to heat or shock. This action is an inherent property of acetylene itself, and is quite distinct from the formation of explosive mixtures of acetylene and air.

Because of the property mentioned in the preceding paragraph, acetylene cylinders must be especially constructed in order to carry acetylene under pressure. Acetylene, as supplied in cylinders, is properly called "dissolved acetylene." Washed, dried, and purified acetylene is compressed into steel cylinders which have had their complete interior previously filled with a porous substance. The porous substance is saturated with a liquid solvent, usually acetone, which has the property of absorbing or dissolving many times its own capacity of acetylene at atmospheric pressure. When pressure is applied, the solvent continues to dissolve acetylene, absorbing for each atmosphere of pressure the same quantity of gas that it did at atmosphere pressure. The quantity of the solvent in the cylinder is so regulated that the cylinder will contain about ten times its own volume of acetylene for each atmosphere of pressure that is on the gas. Cylinders are, as a rule, charged to 15 atmospheres pressure at 60 degrees Fahr., so that they contain about 150 times their own volume when charged. This combination of a porous material and a solvent makes impossible the propagation of an explosion into the cylinder.

As in the case of oxygen cylinders, safety devices are provided. These are the fusible plug type, and melt, releasing the gas, if the cylinder is exposed to fire.

When oxygen cylinders are in actual use, the opportunities for contact with oil and grease are multiplied and special care must be taken to avoid such contact. Do not handle cylinders or operate valves or touch any oxygen equipment with oily hands or gloves. Do not place cylinders where oil or grease may drop on them.

It is always good practice to mount cylinders on a truck or support them in some way so that they cannot be accidentally knocked over. They should be kept away from the actual welding or cutting operation.

Oxygen should never be used without a regulator to reduce and control pressure.

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Every plumbing and heating contractor should be making a vigorous effort now for Christmas gift business. We published a little campaign last week—herewith are two Christmas ads. Use the copy—if you want the cut, order it. We'll send twelve—a new one each week—for only $4.20. Get started now toward securing a share of the tremendous Christmas gift funds which will be spent in your community.

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GIFTS that last and that serve the comfort and convenience of the family for years. Water heaters, fine kitchen sinks, temperature regulators, swing spout faucets, everything from a washer to a complete bathroom or heating plant. Put us on your memo list for a visit.

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GET into the news columns now when people are thinking of Christmas purchases—you will find the effort worth while.

FOR TIRED CHRISTMAS SHOPPERS

"Probably the most difficult person for whom to buy a gift that will be unusual and unexpected is one of one's own family circle," says Harry Brown, local plumbing and heating contractor.

"One knows what each member of the family has, needs and, perhaps, desires. Yet we all like to be surprised—to receive gifts we didn't expect. That's why plumbing and heating gifts can be so effective. Just to mention one—a complete personal bathroom for the son or daughter of the family. That would be a really unusual gift, and one that would please the whole family."

Plumbing and Heating Gifts

PUT us on your shopping list for a visit. Here you will find gifts for the family—gifts which, we believe, will meet your requirements perfectly and which will contribute for many years to the comfort and convenience of the family. We have very complete displays.

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HERE is a sales letter, once more on the topic of Christmas gifts. Send it to your customer list.

HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.,
December 8, 1928.

Mr. Edward Jones,
Two Rivers, N. Y.

Dear Sir:

You're busy—yet you want your Christmas gifts to show personal attention to their selection.

I believe that if you will drop in here I can show you something for every member of your family which will show that thoughtful attention on your part, will be practical, lasting and beautiful.

I cannot think of anything which would please a daughter just growing into young womanhood more than the gift of a bathroom for her personal use—or for a growing boy.

For the home manager there are so many things it is difficult to enumerate them—a kitchen sink of the right height, most convenient in construction; a water heater; the new designs in swinging spout faucets, etc.

We suggest that you drop in for a few moments to examine our display. It will help you solve some of the most difficult of your Christmas gift problems.

Very truly yours,
HARRY BROWN

"We got the Garrett Building Contract *by recommending a lasting pipe system!*"

"I TELL you, Stanford, we'd never have come within a mile of that Garrett Building job if it hadn't been for the little bit of sound advice we put in about Byers Pipe. You know the competition we had. Long & Lang thought very well of us, and said so; but we weren't the lowest bidders, and what could they do? This idea of an installation that would last as long as the building, though, put a different face on the whole matter."

"I remember something about that. What did we tell 'em the added cost would be?"

"Why in their case, it was a little more than usual. We told them the general fact, that a wrought iron installation, when completed, runs about 5% higher. When we came to figure their specifications we found the difference was 8%. But even that was so ridiculously small, for the extra value they were getting, that they closed with us right away. They're well satisfied, too, I happen to know."

"Would they say a word for us, do you think?"

"I'm sure they would. Their engineer brought the subject up of his own accord the last time I saw him. He said the way we handled our estimates at the time, and the whole record of the installation since, were very much to our credit."

"All right, let's treat this High Tower job in the same way. Submit alternate bids. Make 'em understand that we can put in cheap pipe if they want it—as cheap as anybody,—but that we recommend a permanent installation and that's were we can show them real economy. Then refer to the Garrett Building people for an opinion."

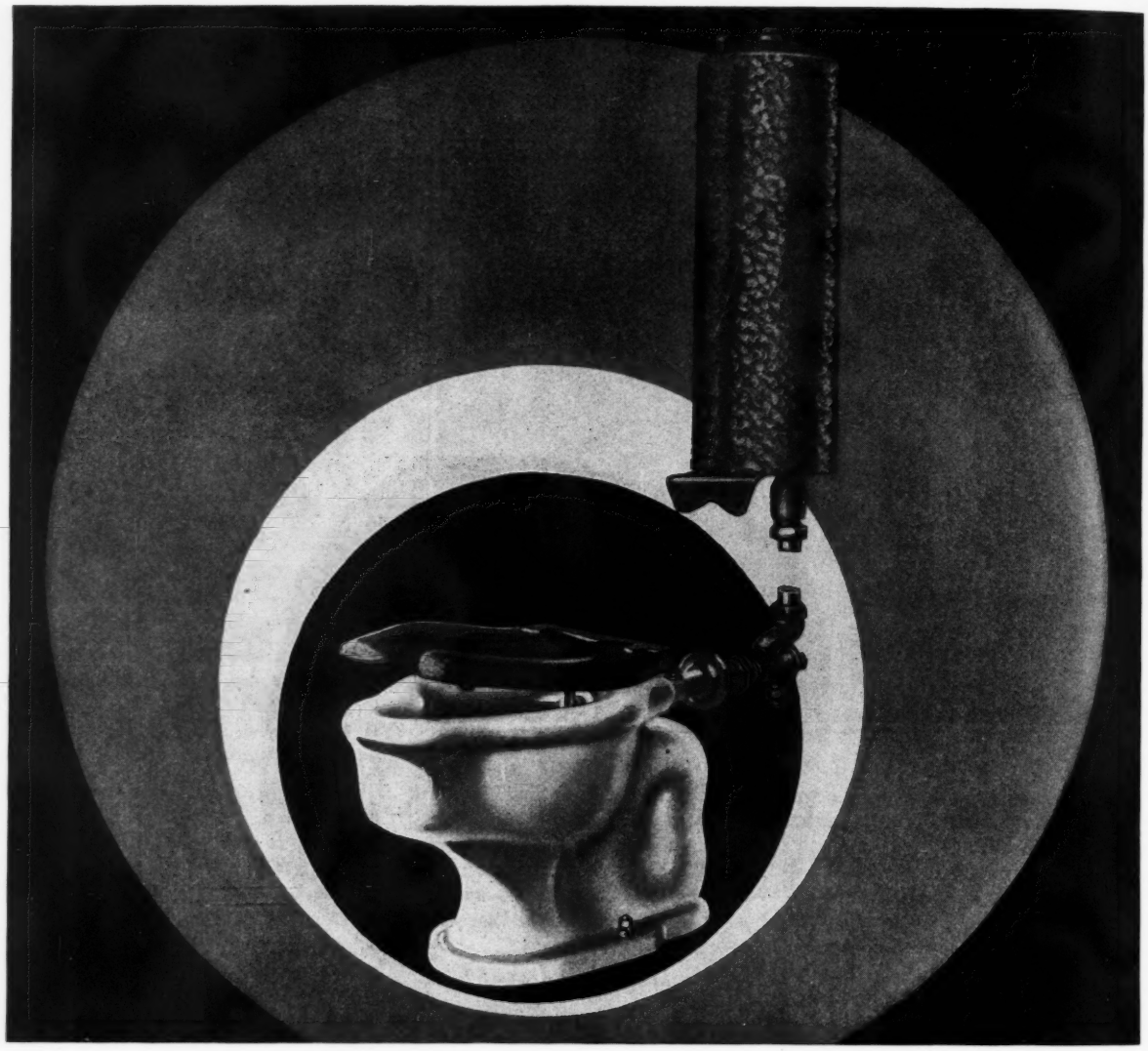
"All right, Mr. Hamilton, we'll do just that. We can't lose anything by it anyhow; and I think it will give us the best possible chance of landing the contract."

A. M. BYERS COMPANY
Established 1864 Pittsburgh, Pa.
Distributors in all Jobbing Centers

To the Plumbing Contractor:

A supply of *Alternate Bid Labels* will be furnished you on request. Simply paste one on any piping bid, to indicate the small extra cost if Byers is used. You'll be surprised at the welcome this receives.

BYERS PIPE
GENUINE WROUGHT IRON



A Style for Every Need . . . . . .
Each with Over-Heavy Bowl . . .
The Simple Madden Valve . . . .
And Clow Sure-Scouring Action

THERE are more than 48 styles and sizes of Clow Madden Automatics. No other closet approaches them for completeness.

All Clow Madden Automatics carry the extra heavy Adamantose bowl—weighing as high as 60 pounds—far heavier and stronger than the average. Moreover, this twice-fired Adamantose ware absorbs no stains, shows no cracks or checks.

The heart of any closet is the valve. The Madden Valve has no weights or contraptions. It can't forget to flush. When the seat is down the closed top tank fills—when the seat raises with the user—the Madden Valve lets loose a cleansing flood of water.

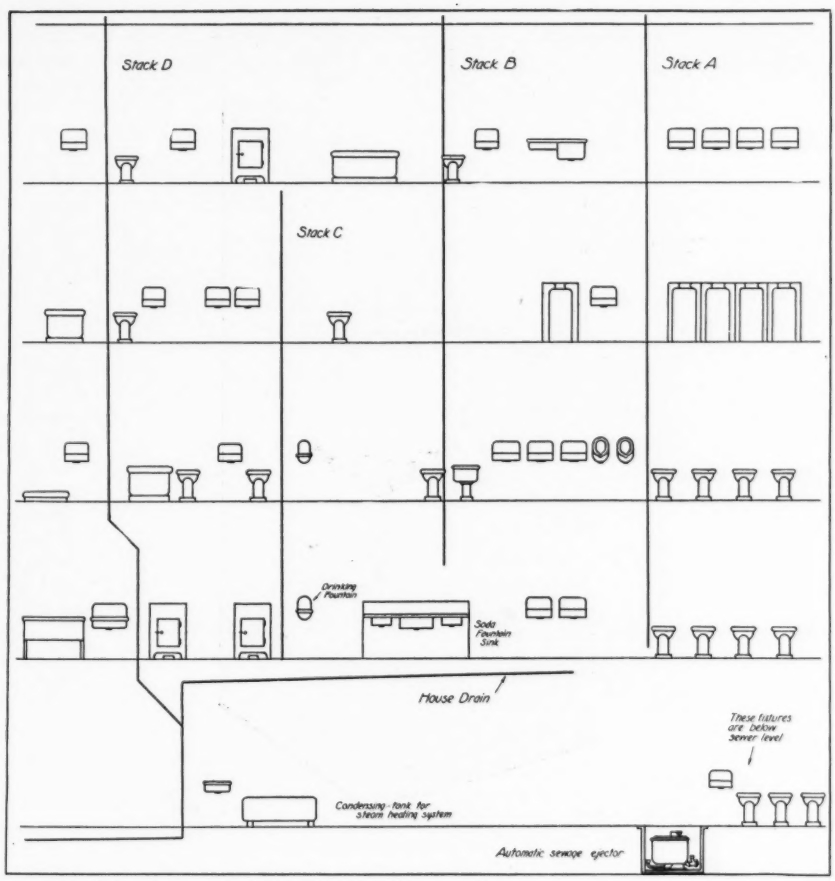
And, because of the well-designed bowl interior, every part from rim to trap receives an equally high pressure flush.

Clow Madden Automatics guard health, guard costs, as no other closet can.

James B. Clow & Sons, 201-299 North Talman Avenue, Chicago

CLOW MADDEN AUTOMATIC

Forty-Eight Styles, Heights and Types to Meet Your Requirements



Plumbing Problems in Remodeling

The master plumber who submits a neat drawing of a remodeling job creates a good impression and increases his chances of selling

IN this problem we are giving you a lot to think about. In the first place, it is quite an extensive job, the total number of fixtures being sixty.

As you will see from the accompanying illustration, we have given you what we may call a skeleton drawing. The character and location of fixtures is given. The course that the house drain takes is also shown. In addition, four stacks are shown, and these and no other stacks are to serve the entire job.

Stack A is to serve the batteries of water closets, urinals and lavatories which appear at the right of it. For these batteries of fixtures we want you to use circuit or loop vents as far as your local plumbing code will permit. We find a few codes which for some unknown reason prohibit the use of circuit and loop vents. In that case, install this work as your code will allow.

If you use circuit venting you will require a vent stack at the other end of the batteries, but if loop vents are used, the vent stack will run parallel to and close to the soil stack.

Stack C is the refrigerator stack.

The remaining fixtures may be connected to either of the other stacks, according to your own judgment.

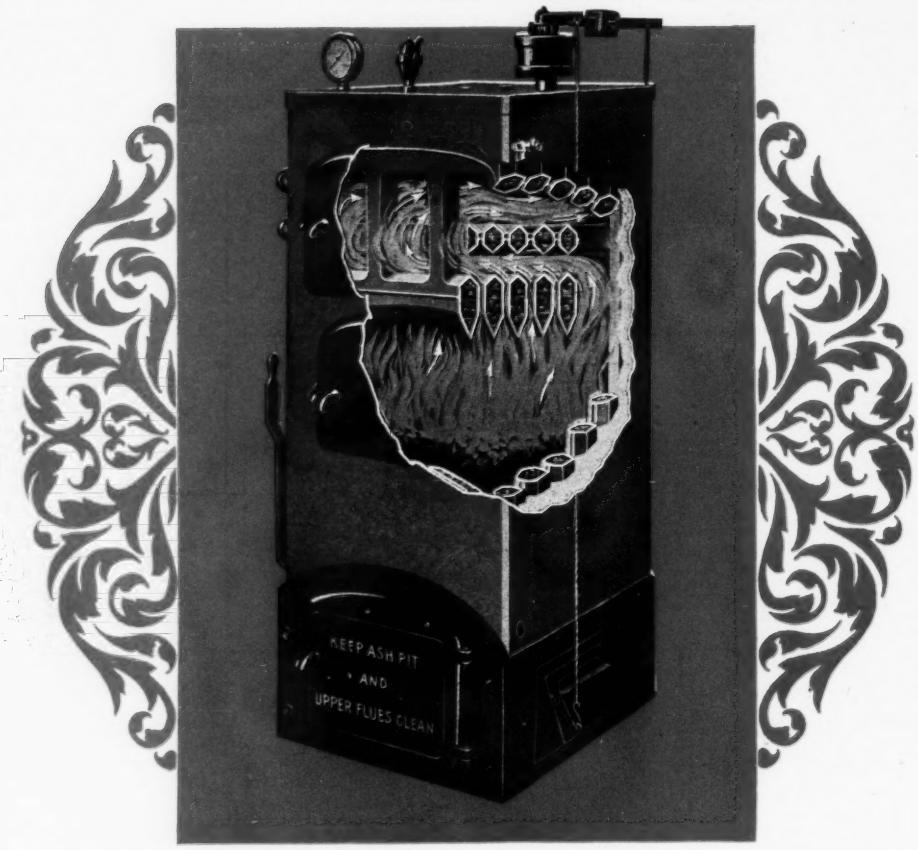
The three "specialties" in this drawing are the soda fountain sink, the condensing tank and the handling of the sewage made by the fixtures that are below sewer level, by means of an automatic sewage ejector.

Probably the latter is the part of the problem that some of you will not be familiar with. If you do not know how to handle sewage that collects below sewer level, it will be O. K. to omit this part of the work, although we would rather have you study up the correct method and include it in your drawing. Never mind if you do not get it entirely correct. After the drawing is criticised and discussed in a future issue of "Domestic Engineering" you will know more about it.

Then there is the condensing tank and soda fountain sink. In both these plumbing features we have been surprised to find what a number of ways there are of connecting. In the issue of "Domestic Engineering" of Sept. 29, 1928, there was an article three or four pages long, devoted entirely to the subject of condensing tanks, and it will well repay you to read the article before making the connections called for in this drawing.

It is the same way with the soda fountain sink.

The only instructions we have to offer in connection



The exceptionally deep fire box permits heavy fuel charges, gives ample space for proper combustion, and makes long firing periods possible. Long fire travel promotes maximum heat transfer, boosts effectiveness. A thick layer of rock wool insulation decreases heat loss.

GOOD LOOKING . . . . BUT AFTER ALL, ITS MAIN JOB IS HEATING!

COLOR helps to sell a boiler in the show room, helps to lift it from the drab and commonplace. Hence the durable, dirt defying empire green finish, with trimmings of glossy black, on the National Jacketed Boiler. It's a fine looking unit—there is none better.

But, after all, a boiler's job is to keep the building warm—not just to add snap to the basement. So the National Boiler *inside the jacket* was exhaustively tested, and the factors of its dependability, economy and convenience conclusively demonstrated before it was marketed.

The National Jacketed Boiler's *appearance* proves its attractiveness; its *record* proves its performance; the fact that it's a *National Product* gives assurance of complete and lasting satisfaction.

NATIONAL RADIATOR CORPORATION

MANUFACTURER OF RADIATORS AND BOILERS

Nine Plants devoted to National Service through these Branch Offices and Warehouses:

Baltimore, Md.—2600-2622 Matthews St. Boston, Mass.—93-97 Oliver St.
Buffalo, N. Y.—259-265 Delaware Ave.
Chicago, Ill.—2445 N. Keeler Ave. Cleveland, Ohio—935 E. 63rd St.
Cincinnati, Ohio—3530-36 Spring Grove Ave.
Indianapolis, Ind.—431 W. Georgia St. Johnstown, Pa.—221 Central Ave.
Milwaukee, Wis.—124-130 Jefferson St. New York, N. Y.—55 W. 42nd St.
Omaha, Neb.—108-112 S. Tenth St.
Philadelphia, Pa.—121 N. Broad St. Pittsburgh, Pa.—1509 Arrott Bldg.
Richmond, Va.—3032 Norfolk St.
St. Louis, Mo.—1042 Central Industrial Ave. Washington, D. C., 2205 Fifth St., N. E.

AERO NATIONAL JACKETED BOILER NATIONAL PRODUCTS

with this problem is to complete the plumbing layout by drawing all piping and connections, showing in connection with your work the best plumbing practice you are capable of producing. After you have done this, send your drawing to "Domestic Engineering" to be discussed with other drawings in some future Schoolmaster article. The opportunity thus offered has wonderful educational possibilities for you.

Most of you will desire to see your work when published, make the best possible appearance. That result can most surely be reached when you are painstaking in your work, making the drawing as clear and distinct as you possibly can.

If you make your drawing in ink, and we hope many of you will want to do so, please observe the following suggestions:—

1. Lines should be black and firm.
2. Use drawing ink. Writing ink is not sufficiently black.
3. If there is to be any lettering or any figures, the character should be distinct and sufficiently large to be readable when reduced to the size of a cut.
4. The drawing should be made on a good quality of paper, so that the lines will not be rough or blotted. In the daily work of the master plumber, there is a great advantage in being able to make a plumbing drawing neatly and quickly. This has great sales possibilities.

If you will make your drawing in ink, following the above instructions, then it will not have to be re-made by our art department, but will be published exactly as submitted by you.

Sharpen Your Pencil for This Problem

Recently we received an inquiry asking how to find the contents of a cylindrical tank 5 feet inside diameter at the top, and 6 feet at the bottom, the tank being 4 feet high. We thought it would be of interest in connection with the work of the Class to hand the problem out to you. See what you can do to solve it. We believe there is more than one method of solution. Send in your result and show the method you used.

Permanence

(Continued from Page 27)

& Lord, during the last year of Mr. Rushlight's association with that firm was $900,000. Since the new firm of A. G. Rushlight & Co. was established in March, 1927, the volume of business has been over $600,000.

FINDING BUSINESS ABILITY

I REALIZE that this story is somewhat different than those which have preceded it in this series. Up to now I have stressed the merchandising and selling activities of men in the plumbing and heating business.

But it is well now and then to try to get back of merchandising, which is the surface indication of business ability, and try to learn something of less obvious factors. I take it as demonstrated that in this industry merchandising is being practiced to an extent satisfactory to the man who understands that he will find in no industry under the sun perfect merchandising ability in every retail outlet of that industry.

An industry which attracts types of men like Mr. Rushlight—and there are many men who can claim a large share in such civic activities throughout the country—who can serve their communities successfully both as business men and as public officials, that industry is worthy of careful study and consideration in any marketing plan. We simply must discount the old human habit of gen-

Rundle Ware Helps You Build Winter Sales

This is the time of year to talk home modernization. Show your customers how a few dollars invested in Rundle Ware will bring their bathrooms and kitchens up-to-date and give the entire home a modern atmosphere.

Point out the distinctive features of Rundle Ware—the beautiful designs, the graceful proportions, the snow-white surfaces, latest features, and highest quality. They all appeal to the modern woman.

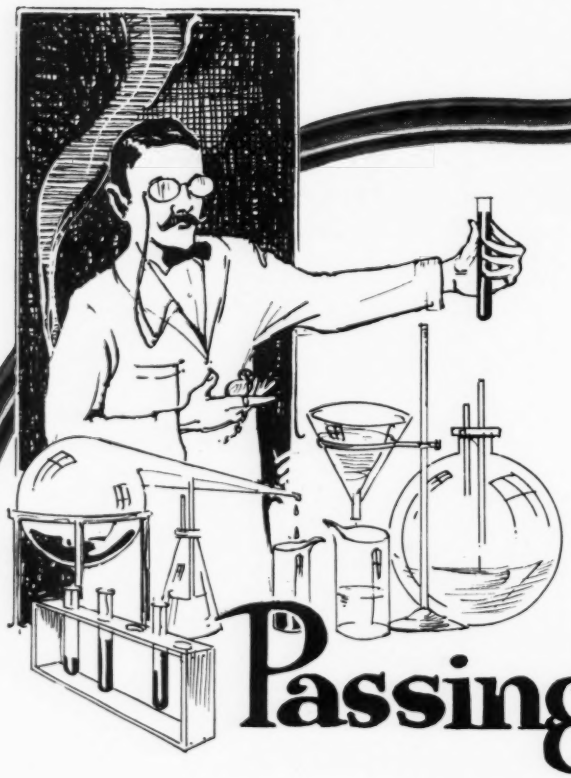
Feature Rundle Ware as a winter sales builder. Write for catalog.

Rundle Mfg. Co.
Milwaukee, Wis.

RUNDLE
PLUMBERS' SANITARY ENAMELED WARE
BRASS AND IRON GOODS

The Mark that Has Won the Confidence of Buyers

LEAD PIPE



Passing All Tests

All the tests that modern science and craftsmanship have applied to lead pipe only prove the more its unmatched superiority.

Scientists must be satisfied with facts, the workman by experience. In both instances the highly enthusiastic commendation upon lead pipe is completely justified in view of its remarkable performances. Use lead pipe on every job. But be sure it is National Lead Pipe.

LEAD
THE
EVERLASTING
METAL
THAT ONLY
A PLUMBER
CAN INSTALL

NATIONAL LEAD COMPANY

National Lead Co.
(Principal Office)
111 Broadway, N. Y. C.

Georgia Lead Co.
Atlanta, Ga.

National Lead Co.
(Jas. Robertson Lead Works)
Baltimore, Md.

Chadwick-Boston Lead Co.
Boston, Mass.

National Lead Co.
Buffalo, N. Y.

E. W. Blatchford Co.
Chicago, Ill.

National Lead Co.
(Raymond Lead Works)
Chicago, Ill.

National Lead Co.
Cincinnati, Ohio

National Lead Co.
Gibson & Price Co.
Cleveland, Ohio

Lawrence Shot & Lead Co.
Omaha, Neb.

John T. Lewis & Bros. Co.
(Tatham Bros. Works)
Philadelphia, Pa.

National Lead & Oil Co.
of Pa.
Pittsburgh, Pa.

National Lead Co.
St. Louis, Mo.

National Lead Co.
(Northwestern Works)
St. Paul, Minn.

Hoyt Metal Co., Ltd.
of Canada
Toronto, Canada

eralizing from a few particular instances. We found men in plumbing and heating, as in other industries, who could not be considered as possessed of any great amount of business ability. But we had to realize that through whatever industry we chose to market our product, we'd have to do it by a process of elimination and selection. We have no complaint to make with our choice of the plumbing and heating industry.

Letters to the Editor

COMMENTS ON SOME OF OUR RECENT EDITORIALS

Editor, "Domestic Engineering":—Once in a while articles appear in your journal that convince one that there is a regular he-man in your outfit. The reason for my observation of your "observation" is that the article, "Eliminate the Man Friday," in the issue of November 3, has been brought very forcibly to my notice in the past few weeks. To my mind this is a new way of telling the story that was contained in the fable of "killing the goose that laid the golden egg."

After many years in the plumbing and heating line, I have come to the conclusion that there is about so much plumbing and heating goods that can be sold, unless you go into a very wild gamble, and everyone knows we gamble enough as it is. Consequently I can say "amen" to the observation and wish you more power to your elbow.

The next one, "Why Not Study the Retailer?" is a very good hint to the people in question, but as I happen to be on the retailing side, haven't got much to say in the matter except to drive home the last paragraph: "He is, after all, the point of contact with the consumer." If I was able to talk Chinese I would quote a very pertinent remark of theirs, but which boiled down to plain English will sound like "Atta-boy."

Yours very truly,

Utica, N. Y. W. E. Stradling.

Top picture: H. J. Hanna, Lehigh Valley Supply Co., Easton; A. E. Haines, Lehigh Valley Supply Co., Allentown; D. J. Stettler, master plumber; J. B. Simonton, Lehigh Valley Supply Co., Allentown. Lower left picture: Harold Best, L. N. Katzmire, and, in front, Fred Fehl, secretary. Lower right picture: Charles S. Kramer, plumbing inspector of Allentown; E. H. Meglathery, plumbing inspector of Bethlehem. Photos taken at the outing of the Allentown Master Plumbers' Association

WOLFF

"DURO" BATH FAUCETS

—are designed for your customers who must have beauty plus utility in the details of their homes.

WOLFF CO.
"Superior Plumbing Fixtures"
CHICAGO

SUPERIOR PLUMBING FIXTURES

P.B.F.

Every fitting air tested under water.

PHOENIX BRASS FOUNDRY
IRVINGTON, N. J.

$66 to $285

BUTTERFIELD, Inc.
Glendale, California
Plumbers Say:
I would recommend the EverHot to any merchant-plumber who values his reputation and is interested in building business

EverHot Heater Co.
Detroit, Michigan
Branches and Sales Offices in 61 Cities in United States and Canada

O-B Brass Valves
are made in the following styles

Flexitite Disc Gate Valves
125 lb. Standard, Non-Rising Stem, No. 20
125 lb. Standard Rising Stem, No. 21
100 lb. Light Standard, No. 25

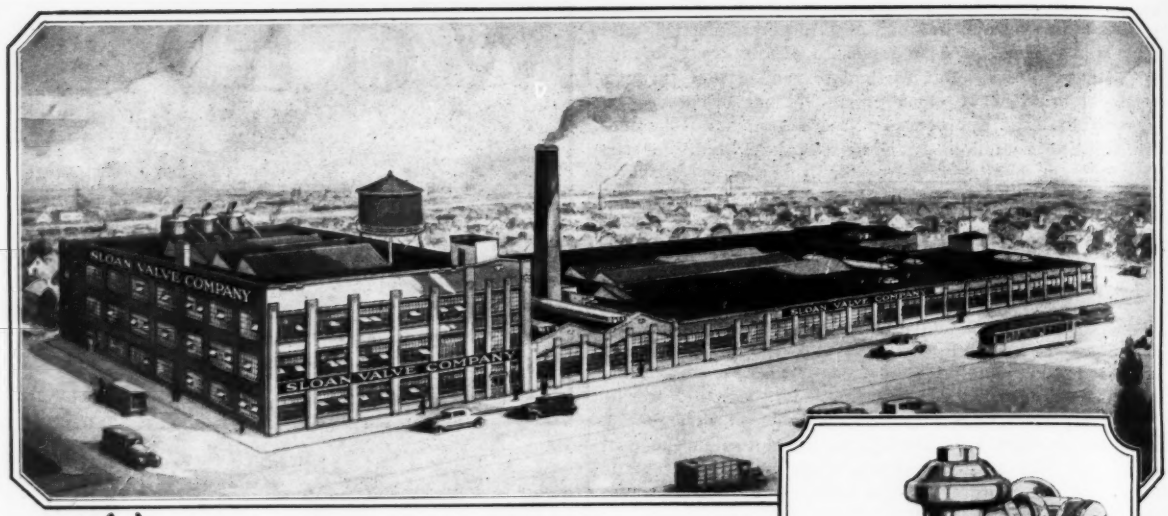
Radiator Valves
Flexitite Disc Gate, No. 50
Steam, No. 30
Hot Water, No. 40
Union Elbows, No. 45

Globe, Angle and Check Valves—Renewable

	Brass Disc	O-B Disc
150 lb. Standard		No. 10
125 lb. Standard	No. 1	No. 15
Competition	No. 2	No. 3
Lock and Shield	No. 5	

Flexitite Disc Gate Valve Patented

Ohio Brass Co.
742V Mansfield, Ohio



Where nothing but flush valves are made

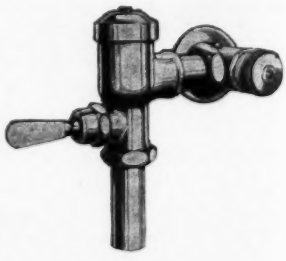
IN the plant of the Sloan Valve Company covering 100,000 square feet of space, and using the most modern machinery and equipment, the combined efforts of over 500 craftsmen are concentrated in doing only one thing—*the making of efficient, dependable flush valves.*

Here, where the Royal, Marine and Gem flush valves are made, no expense is spared in getting the highest-grade materials and skilled workmanship to insure satisfactory service in the largest measure.

You have a standing and cordial invitation to visit the factory where nothing but flush valves are made.

The **ROYAL**

The **MARINE**



The **GEM**

SLOAN VALVE COMPANY—CHICAGO

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Boiler, Radiator and Soil Pipe Prices Are Advanced

IN THE seven days that have elapsed since last week's survey was published, added impetus was given the strength shown in manufacturers' quotations to wholesalers since the fourth quarter opened. This came in the form of an announcement by nearly all makers of an approximate advance of 10 per cent in prices on radiation and an advance of from 7 to 10 per cent on different types of boilers. The other price change was made by most of the large producers of soil pipe, who advanced their prices 2½ points. Just about a month ago these same soil pipe makers had announced a substantial price advance.

Trading during the week held at a fair level in most of the large jobbing centers, although it seems from reports that business is commencing to show signs of spottiness and gradually tapering off in some sections. This is attributed in part to the fact that master plumbers are less busy and also to the present attitude of wholesalers toward buying in larger quantities than necessary with inventory so close at hand. While there might be some let down in activity in the heating field it is only slight, and, taken as a whole, this branch of the industry is holding its own. Production is well enough regulated in nearly all lines so that wholesalers can secure replacements about as wanted.

NEW YORK

Prices Continue To Gain Strength—

Price seems again to be the paramount feature in reviewing business in the Greater New York market for the past 30 days, and manufacturers generally seem to feel reassured as none of the advances have lost ground. Producers of cast brass goods made an advance of approximately 5 per cent and soil pipe foundries notified the wholesale trade of a substantial price increase early in November. Then on December 3 most of the large soil pipe makers announced another advance in their prices of 2½ points. On November 28 the notification of a large manufacturer of boilers and radiators was mailed, raising radiator prices about 10 per cent and those of boilers from 7 to 10 per cent, according to type. This move was followed by most other producers of cast iron heating equipment.

The demand for materials over this period has held well, considering the season of the year. Of course, though, there has been some tapering where plumbing fixtures are involved. This might be true to some extent of the various kinds of pipe, but to a much lesser degree when applied to brass goods. Boilers and radiators up until the past fortnight continued a rather steady trend where demand is concerned, but toward the closing days of this period halted slightly in their upward climb. Range boilers have suffered in the matter of buying activity following the substantial October business. The situation as it now stands is sending manufacturers down to the first of the year with more confidence than has been present for some time. Most manufacturers have production geared well to demand and are making deliveries that are satisfactory.

New construction started in this area during the past 30 days, according to F. W. Dodge Corp., amounted to $74,485,200. That on which contracts were awarded involved $20,870,900 for the past week. When the last mentioned figure was segregated into classes, residential buildings led all others, being $12,053,400, or 58 per cent of the total. Educational projects amounted to $4,101,600, or 20 per cent; commercial buildings had a total of $2,309,000, or 11 per cent; and public works and utilities amounted to $1,069,300, or 5 per cent.

Soil Pipe

During the week most manufacturers advanced their prices to wholesalers 2½ points. The volume of cast iron moving into this market is reduced to a seasonally fair volume. The reluctant attitude of wholesalers generally toward buying much beyond their immediate future needs is responsible to no little extent for the limitations of foundry shipments. While production is well down in many cases, there is nothing about the manner in which deliveries are made to create dissatisfaction.

Pipe—Brass, Steel and Wrought Iron

Manufacturers find that the end of the month business did not give tonnages the position that is usual, as some wholesale houses are already wrapped up with stock taking. Brass pipe is in its way giving a rather good account of itself. Steel mills report lighter shipments from this territory for the past seven days. Business for the week involving wrought iron was seasonally good. As a matter of fact, practically all producers of long pipe enjoyed a good average month despite the fact that the trend of sales was rather mixed. Piping contractors are well engaged and it is only reasonable to suppose that the first of the year will roll around with at least a fair amount of business. There is nothing fresh to report concerning prices, as all manufacturers are holding to the printed quotations that have existed for some time. Shipments are made promptly.

Fittings

Jobbers throughout the Greater New York territory during the seven days this report covers committed them-

selves almost as a unit for their immediate requirements. This procedure gave manufacturers a volume that was greatly reduced over that which they have been accustomed to supplying for the past few months. Demand from piping contractors may have moderated somewhat, but it still entails quantities of brass, cast iron screwed and malleable types sufficient to give consumption a rather good movement. Makers are having no difficulty supplying the wants of their trade. No change in prices has been announced by manufacturers.

Enameled Ware

The rate at which enameled ware is moving from manufacturers' warehouses, after moderating ever so slightly from week to week for the past 30 days, underwent no change during the past seven days and the pace of buying on the part of wholesalers seems to have settled somewhat when the comparatively small quantities that compose each order are totaled. November, all things being considered, presented more business this year than was obtainable during the same period of 1927. Manufacturing is on a basis that is commensurate with consumption; consequently no difficulty is encountered with deliveries. Makers have made no change in prices.

Pottery

The sale of pottery has proportionately moderated with the trend of demand for other materials, although the completed dealings of the past month look well when compared with those of last year. The potential requirements of the trade in the Metropolitan New York area are substantial enough to give manufacturers an optimistic outlook. Jobbers in most instances are committing themselves conservatively as far as ordering for immediate delivery is concerned. Fixtures of the higher grade are being delivered at a seasonally good rate. Distribution is, as a whole, unretarded. Manufacturers have made no change in prices.

Plumbers' Brass Goods

The jobbing trade in this territory seems to be taking things easy right now, when it comes to contracting for either cast or tubular brass goods. Manufacturers are marking time and are supplying the existing demand with little difficulty. The future, from the standpoint of makers especially, is at this time to all appearances particularly bright, as they feel that at least the existing sheets will continue to be closely followed. It is also felt that with the outlook as it is, demand where master plumbers are concerned will take care of itself.

Range Boilers

The close range buying that involves practically all the range boiler business consummated in this territory has reduced volume to about the lowest point it has touched this fall. Jobbers are holding their stocks at the lowest possible point. Demand from plumbing contractors has lost ground during the past week or ten days. Manufacturers are, according to reports, working rather closely to their sheet prices on which they have announced no change. Deliveries are forthcoming as wanted.

Boilers and Radiators

The announcement of a leading producer showing an approximate advance on radiation of 10 per cent and a range of 7 to 10 per cent increase on boilers, featured the week's business. This variance, which is in accordance with the types of boilers, quickly became general. The trend of buying during the week was rather mixed, as some makers reported no let down in demand, while others stated a slight tapering off was discernible. Most producers, however, agree that the end of the unfilled tonnages is in sight as shipments continue at a good pace. Heating contractors are well engaged. Factories are having no difficulty in keeping shipments satisfactory.

CENTRAL WEST

Market Shows Added Strength—

That construction in Chicago is holding at a level which compares closely with that of last year is evidenced by the fact that during the past week 144 building permits were issued with a valuation of $3,833,200, compared with 189 permits, with a valuation of $3,607,800 for the corresponding week of last year. While there has possibly been a slight falling off in the movement of plumbing materials in the past several days, any change is not great, and, taken as a whole, manufacturers' and wholesalers' receipts are about what is expected at this time of the year.

Business continues good where heating materials are concerned. During the week the announcement was made by a number of cast iron boiler and radiator manufacturers of higher prices to the wholesale trade. The new price sheets show an advance of approximately 10 per cent on radiation, and from 7 to 10 per cent on boilers, depending on the types. Most of the large soil pipe producers also raised their prices to wholesalers 2½ points, effective December 3.

Manufacturers of the major commodities have in general so timed their production schedules as to be able to take care of business quickly. Reports indicate that exceptions to this are found where some brass items are involved. Wholesalers are giving more attention to their stocks with the passing of each week and the nearing of inventory.

Soil Pipe

The week's business was featured with the announcement on December 3 by most producers of a 2½ point advance in their prices to wholesalers. Manufacturers' representatives in this district find new business rather slow, according to information gathered during the week. In practically all instances, wholesalers are watching their stocks carefully and the business reaching makers is to take care of the actual needs of their distributors. Foundry stocks are ample and well assorted, with prompt shipments the general rule.

Pipe—Steel and Wrought Iron

Contractors' needs in the line of roughing-in materials are only seasonally average, and, as a result, the amount of pipe moving from mills and jobbers' stocks for new projects is not heavy. Heating contractors, however, are still in the midst of their busy season, and their activity is accounting for fair tonnages. Both wrought iron and steel pipe mills are in good production, and, with the stocks that they hold, can give prompt attention to orders. Mill prices have not been changed.

Fittings

From information secured during the week it seems that demand for the various types of fittings is holding at what is termed by most sellers as close to an average seasonal pace. The activity of heating contractors is felt where certain types are concerned, but the types ordinarily used on roughing-in work are not moving as freely as a couple of months ago. Manufacturers' prices to wholesalers are reported firm and unchanged. Factories are according prompt shipments.

Enameled Ware

In the opinion of most wholesalers in this district, contractor demand is holding close to the pace that has prevailed in the past two or three weeks. Manufacturers are in receipt of a fair volume of business, but orders reaching them are mainly a reflection of the actual needs of their distributors, as the latter are generally guarding against

the building of stocks. No complaints are heard regarding the manner in which factories are handling orders.

Pottery

October shipments of vitreous china plumbing fixtures, including all vitreous china ware which in regular practice is connected with a drainage system, as reported by 32 manufacturers to the department of commerce, were below those for the corresponding month of last year by 8,475 pieces. In a general sense, business in this district is holding at about the pace that has marked the last two or three weeks. Contractors are using average seasonal quantities, and wholesalers are ordering from their sources of supply in about the same volume as their sales. No price changes have been announced.

Plumbers' Brass Goods

In the opinion of most manufacturers' representatives in this district, business held at a satisfactory pace during the past week. Some wholesalers have ordered for their later requirements, and, in general, distributors have enough material in stock or on order to take care of their expected needs into next year. The market is reported strong. Some reports are heard of slowness on the part of factories in shipping certain items.

Range Boilers

There is little pertaining to the range boiler market that is distinctly fresh, and business in this line is mainly confined to the current needs of master plumbers. Wholesalers are not stocking boilers, but are ordering in small quantities just so as to maintain safe working stocks. Factory shipments are prompt, and makers' prices are unchanged.

Boilers and Radiators

During the week most manufacturers advanced their prices to wholesalers about 10 per cent on radiation and from 7 to 10 per cent on the different types of boilers. It seems from information gathered during the week that business for most producers is holding at close to the pace that prevailed in November. Heating contractors continue to be well engaged, and they are calling quite steadily upon manufacturers and wholesalers for material. In general, material can be secured about as wanted.

MIDDLE ATLANTIC

Construction Has Good Outlook—

The thing that looms largest in the business of the Middle Atlantic territory as the last month of the year gets started, is found in what the future holds in the way of building projects. Some of these undertakings have progressed to the point where contracts for them have been awarded, others are on the boards of architects, and in addition there are still others that have been proposed, aggregating many millions. Regarding the construction work that has been awarded, the F. W. Dodge Corp. reports $9,553,500 for the week this survey covers. Nearly half of this amount goes toward the erection of residential buildings and all but a small percentage of the balance represents investments in structures of other types.

The week's buying disclosed a trend that was decidedly more mixed than the previous seven days where the purchases of jobbers generally are concerned. Business without question has slowed down slightly, as the total sales do not aggregate as high as they did a week or so back. Only here and there are wholesalers giving thought to the future.

The price structure, where the manufacturers are concerned, as a whole reflects no loss in strength, but on the contrary seems inclined toward greater steadiness. An approximate advance of 10 per cent on radiation and from 7 to 10 per cent on boilers, depending on the type, was announced to the wholesale trade by one large manufacturer on November 28. Then, on December 3, most of the large soil pipe producers issued new sheets incorporating a 2½ point advance in their prices to jobbers. Unquestionably this all is having its influence on the resale quotations of wholesalers, as less is heard of arrangements involving special price inducements. The distribution of merchandise seems to be in no way retarded.

Soil Pipe

The week was featured with the announcement by nearly all large producers of a 2½ point advance in their prices to jobbers. The wholesale trade generally in this territory, since the last analysis, has run pretty much on the cast iron pipe they contracted for several weeks ago. Manufacturers are furthering this arrangement by strictly carrying out the agreements of delivery they entered into with their jobbers. The rate of consumption is rather low at this time as master plumbers are not as consistently engaged now as they were a little earlier in the year. While producers' reserve stocks are not heavy, still there seems to be no apparent hesitancy where deliveries are involved.

Pipe—Brass, Steel and Wrought Iron

Jobbers are not showing any freedom whatsoever in the way they are ordering, but rather they are curtailing their purchases of pipe to a minimum, taking in only what they need to satisfy current requirements. Brass pipe consumption is such that jobbers are calling on manufacturers for shipments that give this commodity a fairly good rating. The tonnage of steel pipe that is moving into this territory has receded somewhat from the buying interest which up until now held rather well. Wrought iron sales are lagging, as the rate at which this pipe is moving seems to have assumed a spotty trend. The demands of plumbing and heating contractors have perceptibly lessened. Mills are making deliveries satisfactorily. Manufacturers have made no change in prices.

Fittings

At the present time jobbers are forwarding little fresh business to manufacturers. Generally their holdings of brass, cast iron screwed and malleable fittings are broad enough to take care of the needs of their customers. The quantities of fittings in demand have moderated and it only follows that all movement has perceptibly lessened. Distribution continues to be accomplished without interruption. The price of fittings, especially brass types, is steady. Manufacturers have indicated no changes.

Enameled Ware

Jobbers are approaching the year-end with stocks reduced to a point that requires frequent shipments from the warehouses of manufacturers to meet the demands of their trade. This procedure reflects rather closely the irregular demands of master plumbers, which are not as broad as they were a short time ago. Producers' reserve stocks are in most instances substantial enough to assure uninterrupted deliveries. Manufacturers have announced no change in prices.

Pottery

Little of importance transpired in this territory during the week where pottery is concerned, except that some little stress has been laid on the fact that tank trimming prices have been advanced rather sharply. Potters, however, have not indicated an increase in their quotations, but there is discussion current as to whether or not they will be able to absorb the added costs when their present supplies of tank fittings are exhausted. Reports dealing with consumption vary, the larger concerns producing

The Stock Market

Par Value	1928 High	1928 Low	Range for Week Ending Dec. 1, 1928	*	High	Low	Close
NP	87	59	Air Reduction Sales Co.	A	86¾	83	86
25	191¼	130⅛	American Radiator Co., com.	A	190	184¾	185
100	150	141½	American Radiator Co., pfd.	A	141½	141½	141½
25	114	82⅛	American Rolling Mills Co.	B	98⅛	96	96⅛
50	116½	53¾	Anaconda Copper Mining Co.	A	116½	111	111⅛
NP	85½	51⅞	Bethlehem Steel Co., com.	A	85½	79¼	79¾
100	125	116⅛	Bethlehem Steel Co., pfd.	A	124	121⅝	123
NP	62⅝	27	Brunswick-Balke-Collender Co.	A	56⅜	53¾	54¼
NP	185	90½	A. M. Byers Co., com.	A & E	185	151	178
100	113½	108¾	A. M. Byers Co., pfd.	A & E	113¼	111¾	113¼
100	140	128	Century Electric Co., com.	F	130	130	130
100	106	101	Century Electric Co., pfd.	F	103	103	103
50	6	3	Chicago Nipple Mfg. Co., "A"	B	5	4¾	5
50	3	1¼	Chicago Nipple Mfg. Co., "B"	B	2⅜	2⅜	2⅜
25	50	45	Crane Co., com.	C	50	48	49
100	122	118¾	Crane Co., pfd.	C	120	120	120
100	94	67	Detroit Brass & Malleable Works	D	70	70	70
100	109	109	The John Douglas Co., pfd.	H	109	109	109
20	23	17	Eagle-Picher Lead Co.	H	18	17⅛	17⅛
NP	54	32½	Fairbanks, Morse & Co., com.	A	45¾	44	45
100	114¾	104	Fairbanks, Morse & Co., pfd.	A	111	110	110
NP	52	27½	Fulton Sylphon Co.	B	52	46	52
NP	12⅛	8½	Greenfield Tap & Die Corp.	B	12	10	10
NP	194¾	96¼	Johns-Manville Corp., com.	A	189	183⅛	185
100	122	118½	Johns-Manville Corp., pfd.	A	120½	120	120½
100	160	150	Jones & Laughlin, com.	A & E	154	154	154
100	124¼	119⅛	Jones & Laughlin, pfd.	A & E	121½	121	121½
NP	53	30	Minneapolis-Honeywell Reg. Co., com.	B & C	53	50	52
100	126½	98	Minneapolis-Honeywell Reg. Co., pfd.	B & C	126½	122½	126½
NP	57⅞	31½	Modine Mfg. Co.	B & C	54	52½	54
NP	42	32	F. E. Myers & Bro. Co., com.	G	39⅞	39¾	39⅞
100	105⅜	104½	F. E. Myers & Bro. Co., pfd.	G	104½	104½	104½
100	136	115	National Lead Co., com.	A	134½	125½	129
100	147¼	139	National Lead Co., pfd. "A"	A	140½	140⅛	140⅛
100	127	112½	National Lead Co., pfd. "B"	A	118	118	118
NP	40⅜	14	National Radiator Corp., com.	A	18¾	17½	18¼
NP	98½	45	National Radiator Corp., pfd.	A	46	45	46
5	34½	24½	Herman Nelson Corp.	B	27	27	27
NP	46	19½	Neptune Meter Co., "A"	B	20	20	20
100	109	104	Ohio Brass Co., pfd.	G	105½	105½	105½
NP	100	85½	Ohio Brass Co., "B"	B & G	94	93½	93½
100	101½	100	Penberthy Injector Co., pfd.	D	101½	101½	101½
NP	27	14⅛	Richmond Radiator Co., com.	B	19⅛	14½	19⅛
NP	40⅛	32¼	Richmond Radiator Co., pfd.	B	35⅛	33	35⅛
NP	53	26	Spang, Chalfant & Co., com.	A	52¾	45	47½
100	100	97	Spang, Chalfant & Co., pfd.	A	97¾	97¾	97¾
NP	51	34	Standard San. Mfg. Co., com.	A & E	51	44⅛	46⅛
100	128	118	Standard San. Mfg. Co., pfd.	A & E	120	118	120
20	53	45	U. S. Cast Iron P. & F. Co., com.	A	48	46	46
NP	19½	18½	U. S. Cast Iron P. & F. Co., 1st pfd.	A	18¾	18½	18½
NP	19½	18⅞	U. S. Cast Iron P. & F. Co., 2nd pfd.	A	19¼	18⅞	19⅛
NP	48	38½	U. S. Radiator Corp., com.	B & D	43	41	41
100	107½	101	U. S. Radiator Corp., pfd.	D	102	101½	101½
100	63⅜	27	U. S. Rubber Co., com.	A	43⅛	40⅝	41½
100	109⅜	55	U. S. Rubber Co., pfd.	A	72½	69½	71
100	172½	132⅜	U. S. Steel Corp., com.	A	170¼	165	165
100	147¼	138⅛	U. S. Steel Corp., pfd.	A	142¾	141¾	141½
NP	26⅞	14½	Walworth Co.	A	23¾	22⅛	22¼
NP	52	30	Wayne Co., com.	B & C	31½	30	30
NP	52	43	Wayne Co., pfd.	B & C	45	43	45
100	96	72	Wheeling Steel Corp., com.	B	94⅞	94⅞	94⅞
100	126½	125	Wheeling Steel Corp., pfd. "A"	B	126½	126½	126½
100	135½	135½	Wheeling Steel Corp., pfd. "B"	B	135½	135½	135½
NP	24	6½	Williams Oil-O-Matic Htg. Corp.	C	24	19	22
NP	106⅞	83½	Youngstown Sheet & Tube Co.	A	99⅜	98	98¼

*Where listed—
A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Pittsburgh Stock Exchange
F—St. Louis Stock Exchange
G—Cleveland Stock Exchange
H—Cincinnati Stock Exchange

porcelain and vitreous china pieces apparently are seasonally busy, while those making bowls and tanks find interest less sustained as compared to what it was early in November. The average pottery is in position to ship commonly wanted fixtures without delay.

Plumbers' Brass Goods

The tapering down of demand on manufacturers from wholesalers became a little more noticeable since the last report was published. This is about equally true of cast and tubular brass and is more or less of a reflection of the attitude master plumbers are disclosing toward the market. Some of the offices of manufacturers in this territory are in receipt of further inquiries involving after the first of the year requirements. The price tone has lost none of its steadiness. The average factory can make shipments satisfactorily.

Range Boilers

Demand from plumbing contractors is too moderate just now to give jobbers the range boiler turnover that obtained 30 days ago. It only follows that the movement from factories for November did not compare well with that of October. Jobbers' holdings are at a minimum and they are having no difficulty getting deliveries from factories. Prices reflect no change from the standpoint of manufacturers.

Boilers and Radiators

The movement of heating equipment into consumption in the Middle Atlantic territory amounts to practically as much as it did a week ago. The protracted fall demand in some quarters at least has offset early sales' losses sufficiently to give the first eleven months of the year a slightly better showing than was enjoyed over the same period in 1927. Heating contractors continue to keep busy and, with the reduced reserves that most wholesalers are running on, makers are expected to ship promptly. An abrupt announcement made by one large manufacturer on November 28 reached the wholesale trade on the 30th, showing an advance of approximately 10 per cent on radiation and from 7 to 10 per cent on boilers, depending on the type.

NEW ENGLAND

Active Trading Is Not Interrupted—

The month of November, from the majority of wholesalers' and manufacturers' versions, upheld in strong fashion the late seasonal demand for plumbing and heating materials. Reports from various market commentators indicate that but little volume depreciation was experi-

(Continued on Page 69)

The Metal Market

	Dec. 4	Average Oct., 1928	Average Aug., 1928	Average 1927
PIG IRON—				
No. 2 foundry, Chicago, Furnace	$20.00	$18.80	$17.60	$19.66
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.90c	1.95c	1.85c	1.83c
Blue annealed sheets, No. 10, Pittsburgh, per lb.	2.10c	2.00c	2.00c	2.20c
Black sheets, No. 24, Pittsburgh, per lb.	2.85c	2.70c	2.65c	2.91c
TIN—				
Straits tin	53¼c			
LEAD—				
Chicago	6.20c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	18 c	Copper, light	11⅛c
Block tin	47½c	Copper, uncrucibled wire	12⅛c
Brass, light	7½c	Faucets and valves	10 c
Brass, heavy mixed	8¾c	Lead, heavy	5.50c
Brass, red	10¾c	Solder joints	9¼c
Copper, crucible	12¾c		

NOTE: Prices are those quoted on Tuesday of this week.

Legal Questionnaire

Answered by "The Judge"*

Does Contractor Have to Produce Bills for His Materials on a Cost Plus Job?

Editor, "Domestic Engineering":—When I install several jobs on the cost plus basis, can the owner compel me to produce the bills which I receive from the wholesale house where I buy my materials?

I furnish a statement on my business stationery, with each and every item listed that I used on each job, with the cost and my percentage of profit. These jobs are built all over town, and it would be almost impossible to work them on a straight contract price.

I have not experienced any trouble yet, but would like to know just how the law stands on the matter.

Michigan. S. P.

Answer:—Strictly speaking, the owner cannot compel you to produce the bills for the materials used in a cost plus contract, for it is conceivable that there might be no bills to be produced. For instance, you might have had a stock of goods on hand which you had wrought into the work, and they might be goods which you had had on hand for some time and for which you couldn't produce a bill to save your life. You would be entitled to charge the job with the fair market value of the goods at the time you installed them.

Cost plus work is done under very different kinds of arrangements, and a more definite answer to your question could be made, if I knew exactly just what arrangement you had entered into. Strictly speaking, a cost plus contract is one in which you are given a percentage upon the amount of money which you pay for materials and labor. Under such a contract, your percentage would be dependent upon what prices you paid to the wholesale houses, and not what the retail price might be at the time.

It would be possible, of course, to make many kinds of contracts regarding the prices upon which your percentage is to be based, as long as the basis is thoroughly understood. Usually, a cost plus contract means that all the profit the contractor is to make is his percentage, and not a profit from the sale of materials at a retail price.

Probably you know your rights regarding percentages and the basis upon which they are computed.

Of course, the production of paid bills is an easy way to prove what you have paid, but even that is not conclusive in all cases, for you might submit exorbitant bills to the owner and he would not have to pay them, if he could prove that you were paying more than the fair market price. You would have some duty to the owner to purchase your goods at a fair market price.

In the final analysis, you would have to prove to the owner what you had paid for the goods. If you could not segregate the materials which you used on one job from a bill for goods used on several jobs, it would not be necessary to do so, provided that it appeared that the goods which you used on the job in question were paid for at a certain price.

You might have a bill for goods, covering a considerable period of time, in which different charges for the same goods were made to you because of a change in prices. Under such circumstances it would be up to you

*Every effort is made to the end that these answers may be authoritative. However, we cannot assume any responsibility because of the very nature of the service, which is rendered without a personal interview.—Editor.

Pipe Fitting with the Oxyacetylene Torch and AIRCO 99.5% PURE OXYGEN

Many contractors have found Oxyacetylene cutting and welding to be the most desirable and economical method of installing much of their pipe work. This is especially true if they use Airco Oxygen—every cylinder is guaranteed and stamped 99.5% Pure.

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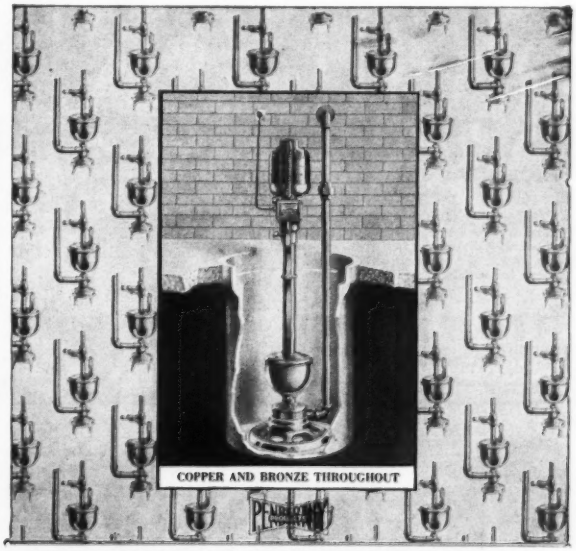

BEHIND THE PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP

is an intimate understanding of drainage problems—a first hand appreciation of sump pump requirements—an excellence of engineering skill and workmanship—a practical knowledge of the possibilities and limitations of materials. Behind the Penberthy Automatic Electric Sump Pump lies experience in the development and manufacture of the Penberthy Automatic Hydraulic Cellar Drainer and other liquid-moving devices since 1886. Write for complete information.

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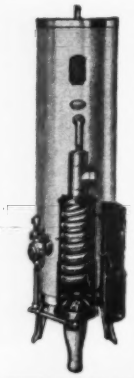
ESTABLISHED IN 1886 DETROIT CANADIAN PLANT WINDSOR, ONT.



Hotstream Automatic Storage Heaters are offered to the Plumbing Trade as the highly perfected result of more than fifteen years experience in the manufacture of water heating appliances. Among their special features are:—

Side Arm Circulating Type
Double Copper Coil Heater with Barber Burner
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Buy the New No. 11-A 1 to 2 in. Ratchet Beaver. The biggest improvement in die stocks in 20 years. All leading jobbers carry it in stock.

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TIME and LABOR SAVING TOOLS

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PRODUCTS....

RICHMOND ADJUSTABLE STAND

"The Husky Baby" stand is incomparable. It is sturdy, strong and adjustable and will support two or three times the weight of any range boiler. Knocks down for storing or shipping.

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Steel Water Heaters Heat Twice as Much

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Kewanee, Illinois

to satisfy the owner regarding the price which you had paid for the goods which you actually used on his work.

In other words, you would not have to produce a bill for the goods used, because the only agreement you have made is to take a certain percentage on the goods which you used, and you can prove that fact without the production of bills. As I have said, a paid bill is an easy means of proof, usually sufficient to satisfy an owner.

Effect of a Release of a Mechanic's Lien Right When Post-Dated Check Proves Worthless

Editor, "Domestic Engineering":—What is the solution of the following situation? I gave a supply house an order on the owner for the full amount of a contract, for which the supply house was to credit my account.

After the job was completed the owner came to me with a release paper to sign, and as this release had been signed by the supply house, of course it was natural for me to think that they had been paid, so I signed the release. It developed, however, that the supply house accepted a post-dated check for part of the amount, and when the check became due the maker had given up the building and had moved away.

The supply house now has held up the credit to me and claims that it is my loss. If they had not signed the release, signifying that they had received payment, I should never have signed the release. I claim that it was through their negligence that the loss occurred. They admit that it was an error of their agent, but refuse to accept any loss.

One attorney says that the release can be set aside and my lien rights put into force, as the check is not a release until paid. But the attorney for the supply house takes the stand that inasmuch as the paper was signed and accepted by the loan people in good faith that nothing can be done with it now.

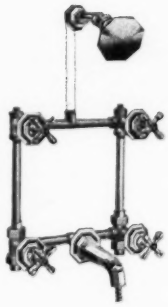
North Carolina. S. H. A.

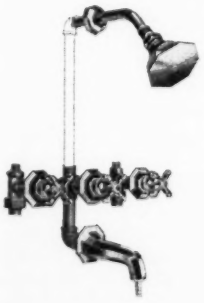
Answer:—As you state the facts, I should say that the release which you signed would now prevent you from working out your lien rights, provided that reliance upon your release has changed the position of somebody besides the owner.

The attorney who states that the release can be set aside because the check was no good, probably has in mind the fact that such a rule might be worked, if the release

Back row: Herman Greenberger, wholesaler; Ralph Kaplan, Tremont Plumbers Supplies; George A. Crow, master plumber; Sam Bernstein, Bernstein & Co.; L. J. Carson, Tremont Plumbers Supplies; William J. McLoughlin, Bronx building department; Louis H. Jarcho, master plumber. Front row: Morris Solomon, Solomon & Pierce; H. W. Levin, Hudson Brass Co.; L. A. Bruce, Standard Sanitary Mfg. Co.; (in front of Mr. Levin): Joseph Bernstein, Tremont Plumbers Supplies; A. Pierce, Solomon & Pierce; Bernie Warshauer, Peerless Mfg. & Supply Co. Photo taken at the outing of the Bronx master plumbers

MASTERPIECES IN ART CHROME No. 7





Art Chrome all-metal Bathtub and Shower Fixtures have all the characteristics that lead to profitable sales—originality, beauty, serviceability.

The distinctive octagonal design is carried out harmoniously to the smallest detail on every part. The result is a rare and beautiful combination made all the more striking in lustrous Art Chrome—equally effective for white or colored bathrooms or fixtures. And the Chicago Faucet famous renewable unit construction means a minimum of trouble and a maximum of service.

Here's a line that sells on sight. Therefore we have three special Art Chrome display boards—in colors, featuring bathtub and shower, sink and lavatory trimmings. Any or all of these will help you make more profitable sales. New circular available too, that you can send out to architects, builders and customers.

Write for full particulars.

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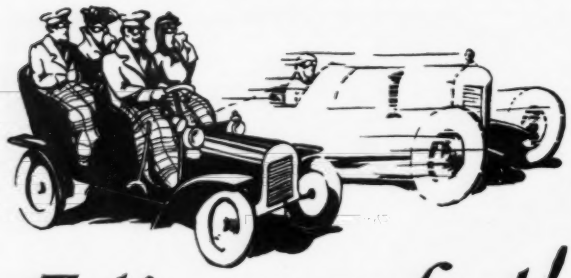

5 times as fast!

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5 to 1 is an important ratio for plumbing and heating contractors to remember. It represents the comparative rate of pressure increase to temperature increase in closed systems.

Why closed systems are dangerous

This comparative rate shows that in a closed domestic hot water supply system failure to turn off a heater can have a disastrous effect if no relief is provided. An increase in temperature from 72 to 110 degrees increases the pressure from 60 lbs. to 265 lbs., and even extra heavy boilers are only guaranteed to be tight up to 150 lbs. working pressure.

How a Red Top Relief Valve insures safety

A Red Top Relief Valve provides an outlet which automatically relieves before pressures reach the danger point. It works on the gravity principle, pressure in the system forcing a nickel weighted piston from the seat. The lead ball is cast in four sections, three of which are removable so the valve can be set to relieve at 50, 75, 100 and 130 lbs.

A Red Top Relief Valve Model No. 2 has the lead ball cast in a single section and relieves automatically at 30 lbs. This valve is used as the basis of an efficient and economical system of hot water heating.

Both valves, by their positive operation have earned the official approval of the Underwriters' Laboratories,Inc., America's foremost testing organization.

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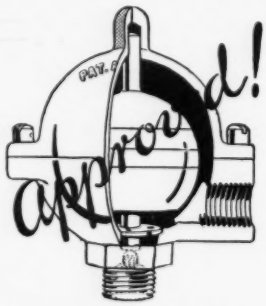

Sectional View, Model No. 1 for domestic hot water supply systems

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50 E. 42nd St. New York City, N. Y.
Branch Offices in Principal Cities

Red Top Relief Valve

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50 East 42nd Street, New York, N. Y.
Please send me a copy of the new edition of your folder, "Protection," which describes Red Top Relief Valves and their operation.
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Street.....
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State.....

were given direct to the owner and no other person had made loans or done other things on the strength of it, to his detriment. If there were no other person in the picture except the owner, and provided that the time had not expired for you to start your lien proceedings, you might well have a right to work out your lien.

However, I assume that a mortgagee, or lender of money, has come into the situation and has loaned money on the strength of your release. If he has, it seems that you cannot get your lien rights to his detriment.

On the other hand, if by loan people you mean a mortgagee or lender who had loaned money prior to the time when you gave your release, you still may have a right to your lien. That is probably not the situation, however.

In other words, if by giving your release, you have not opened the door for somebody to put themselves in a position in which they will suffer if you are given your lien rights, then I should say that you would have a right to work out your lien. You probably would agree that if a person, who intended to grant a loan on the property, secured your release, so that he could be protected in making his loan on the property, it would not be reasonable to permit you to take back your release and work out your lien right.

If Contractor Submits Price for Installing Boiler, Does He Have to Pay for Digging Pit?

Editor, "Domestic Engineering":—A building committee of a country school district handed us a specification for a steam heating system which they had received from another contractor and asked us to submit prices and to copy specifications on our own letterhead. We did so and were awarded the job. When getting on the job we found that a pit had to be dug in order to place the boiler in the basement.

The building committee asked us to pay for digging the pit, claiming that they had taken the matter up with an attorney. Can they make us pay for the same?

New York. B. S. B.

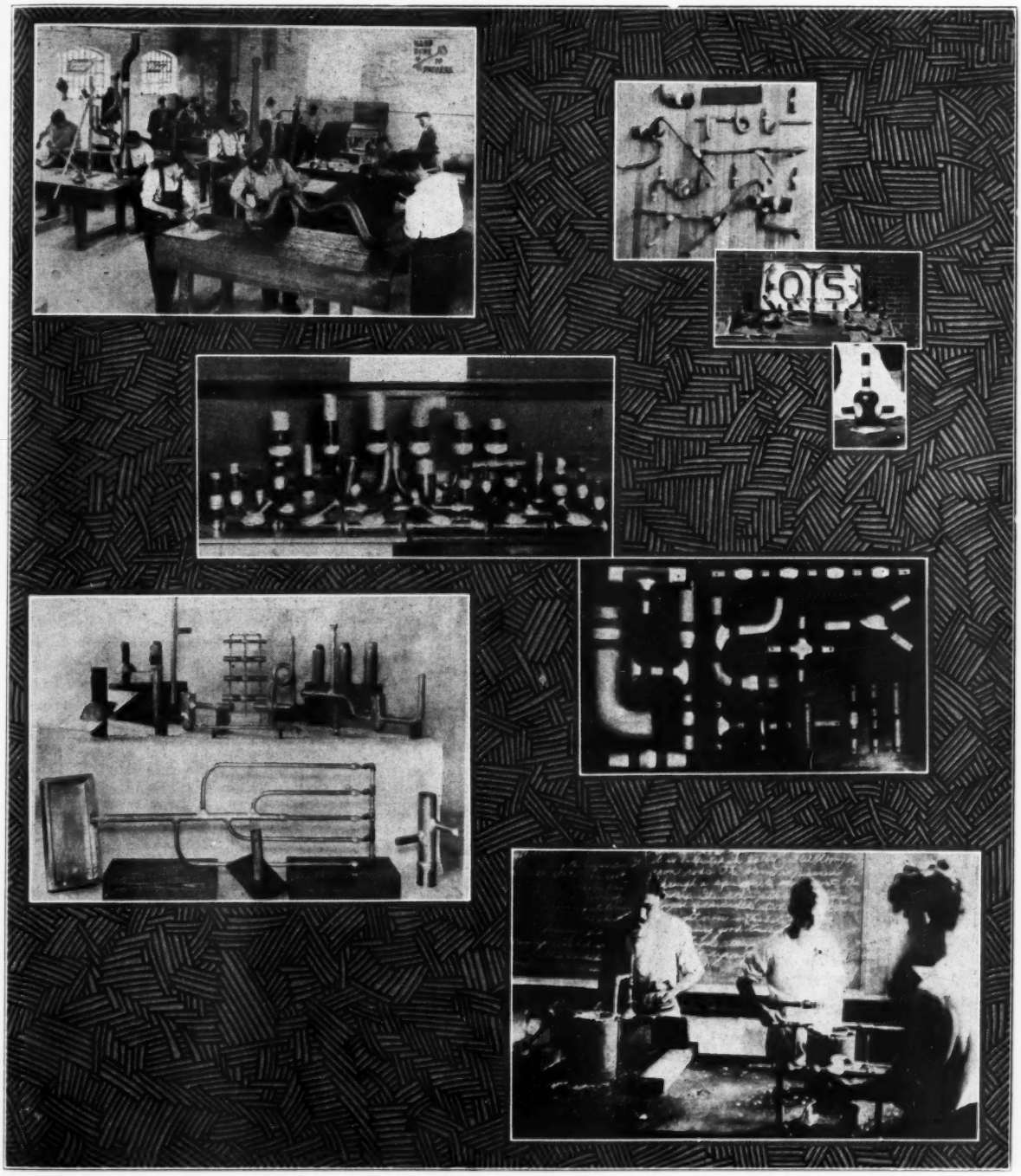
Answer:—It will be difficult for me to give you a very satisfactory answer for the reason that I have no idea what your specifications say with regard to what you agreed to do. Specifications should, in such cases, state whether you are to install the boiler upon a foundation to be furnished by the owner or whether you are to provide the foundation.

I should say that if your specifications are silent upon the question of the foundation for the boiler, you would have to pay for digging the pit. All that the building committee agreed to do was to provide you with the basement in which you were to install the boiler. If the specifications, for instance, failed to mention the fact that a ledge of rock existed in the basement, I suppose that you would have to blast a place in the ledge. This is all on the supposition that nothing was said in the specifications which would give you a chance to argue that the building committee was to have furnished you with a foundation.

You agreed to install the boiler in the basement. You said nothing about a pit that had to be dug. If the digging of the pit was necessary to install the boiler, as you had agreed to do it, there would seem to be no question but that the pit would have to be dug and be paid for by you. Now that it is all over, you probably realize yourself that you should have specified something about the foundation or the pit, and especially that you should have taken a view of the scene of the work to be done, before submitting a price.

LEAD — ITS STORY AND ITS USES

No. 24 in a Series of Picture Stories Describing Lead and its Uses in Plumbing and Sanitation



LEAD WORK IN SCHOOLS—The upper left hand picture was taken at the Army Vocational Training Centre of Aldershot, England. This picture shows a corner of the Plumber's Workshop with the soldier students at work. A. W. Barnes is the plumbing instructor. Lower right hand picture: Native plumbing students in their classroom at the Roman Baldorioty de Castro Technical School, San Juan, Porto Rico. The remaining pictures, top to bottom, are exhibits of lead work by the plumbing students of the following schools: Columbus Public School, Vocational Department, Quincy Industrial School, Quincy, Mass., Lawrence Industrial School, Lawrence, Mass., Vocational Part Time Plumbing School, Youngstown, Ohio, Milwaukee Vocational School, Milwaukee, Wis., and the Ahrens Trade School Plumbing Department, Louisville, Ky.

Every rural woman wants Running Water

IN every village home, in every farm house, is a woman who wishes every day that her home had running water and the comforts of plumbing. The time has arrived when you can tell her that she can easily have them, and show her husband that it will prove a profitable investment. Crane Automatic Water Systems now provide complete, dependable water-works for virtually any home anywhere, at a cost less than city dwellers pay. Write for the new Crane book, A. D. 9-R, *Crane Automatic Water Systems*, illustrating and describing the complete line of Crane systems. Let us send you dealer discounts.

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* Minnesota, North Dakota, South Dakota, Nebraska, Iowa, Kansas and Missouri

Heating a Group of Locomotive Erection Shops

(Continued from Page 22)

while enjoying all the comforts of heating in their homes, have gone along blindly with a stove or even an open fire for heating in their factories. In some instances, the more progressive ones have made attempts at heating, using some of the fine equipment which is available for

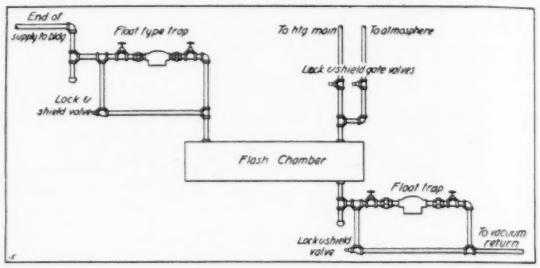

Fig. 15.—Showing method of dripping high pressure distribution mains at end

this purpose but due to the lack of knowledge have not made the proper application of this equipment, with the result that the attempts have been relatively unsuccessful to say the least. Much of the responsibility for this con-

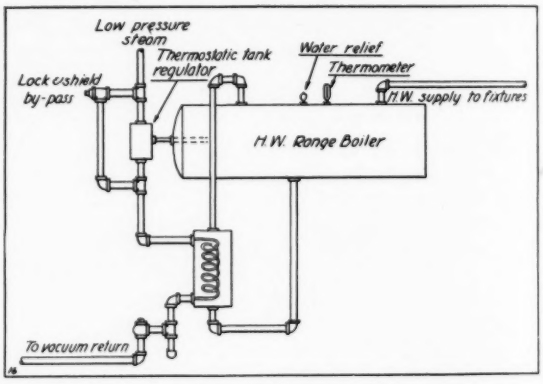

Fig. 16.—Method of heating water for foreman's office

dition rests with heating contractors and engineers who have not made themselves and their art known to the industries. This condition, however, does not mean that no progress has been made in the design of heating plants

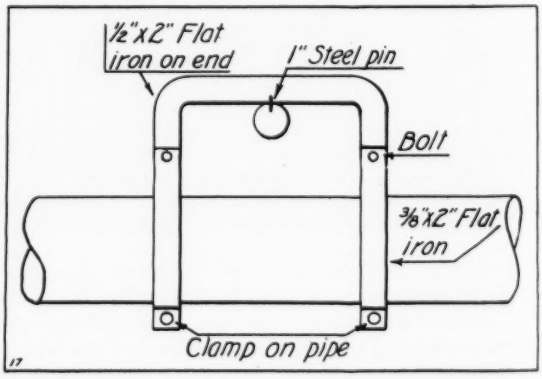

Fig. 17.—Type of hanger for high pressure lines

and their installation, as this science has probably made greater progress than most other lines.

Only a little more than one hundred years have passed since George Stephenson made his first trip with his iron horse and one has but to look at the locomotives assembled in these shops to realize the tremendous progress that has been made in locomotive design and operation. There is something fascinating about a locomotive and every boy at some time in his life has wanted to be a locomotive engineer.

With much less glamor and public interest than the railroad builders have enjoyed, there have been men

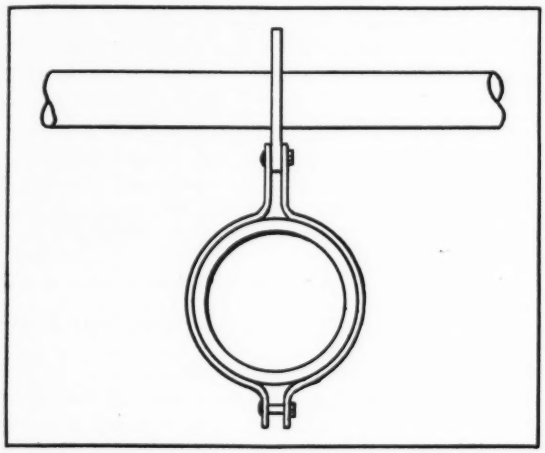

Fig. 18.—End view of Fig. 17

plugging along in heating design and operation in the same space of time, so that when the large shops herein described were designed, the heating industry was tried but not found wanting in progress and equipment. Just how complete the advance has been is manifested by the significent fact that none of the equipment used in this installation can in any way be classed as special apparatus, the entire job being an intelligent application of standard materials and equipment such as can be purchased on the open market anywhere.

The heating of this large shop was done under the direction of A. F. Blaess, chief engineer of the Illinois Central Railroad, and the installation was made under the supervision of Frank R. Judd, engineer of buildings, much of the details of the design being accredited to David Jones, his mechanical assistant. The size of the project was so large that the installation was made under six separate and distinct contracts by heating contractors. None of the work was done by the employes of the Illinois Central Railroad.

SUMMER A HARD TIME FOR SWIMMING POOLS

A comparison of the bacterial results in the swimming pools in Detroit, Mich., for the third quarter of 1928 with the previous quarters indicate that conditions during this period were less satisfactory than in either of the two preceding quarters. A comparison of 1928 with previous years shows that this falling off during the third quarter is a usual occurrence. The general condition of the pools is, however, improving.

Several possible reasons for this falling off in swimming pool conditions during the third quarter are that during this time of the year there are the greatest number of bathers and the smallest number of persons experienced in swimming pool sanitation. Engineers, swimming instructors, bath attendants, etc., take their vacations during the

Back up your work with workmanship

Fig. 370
Screwed, Jenkins Standard Bronze Gate Valve

Fig. 144
Flanged, Jenkins Standard Iron Body Angle Valve

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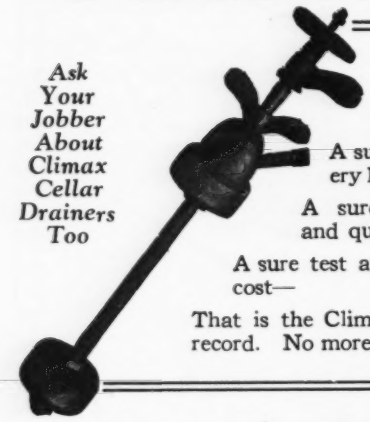

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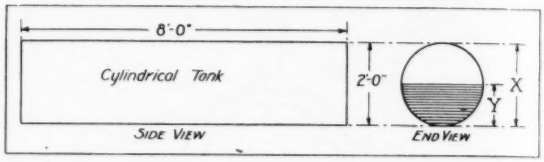
summer and their places are necessarily taken by persons less experienced and, in some instances at least, less interested in the care of swimming pools. In addition, the average temperature of the water is necessarily higher during the warm months and this increased temperature is, of course, favorable to bacterial growth.

Contents of a Cylindrical Tank

WE HAVE received from John Gough, San Francisco, Calif., the following inquiry:—"In the July 21 issue of 'Domestic Engineering,' page 22, you give a method for finding the contents of a partly filled tank. I have worked out the problem for a cylindrical tank 2 feet in diameter and 8 feet long, one-half full of water. I have worked the problem out by two methods, one being the one given in your paper, and you can see



they fail to check by considerable. Where have I made my error?"

Fig. 1 shows the problem graphically.

By his own method Mr. Gough arrives at the correct result, as follows:

Cross Sectional Area = Diam.^{2} × .7854 = 2^2 × .7854 = 3.14 cu. ft.

Cubical Contents in Cubic Feet = Area of Head × Length = 3.14 sq. ft. × 8'0" = 25.1328 cu. ft.

Capacity of Tank in Gallons = 25.1328 cu. ft. × 7.476 gals. = 187.9 gallons.

Tank half full = 187.9 gallons ÷ 2 = 93.95 gallons.

Two mistakes contribute to an impossible answer when our published method is used.

Inadventently our formula was published as follows:—

$$\sqrt{\frac{\left(\frac{X}{Y} - .608\right) \times \frac{4Y^2}{3} \times \text{length}}{231}} = \text{No. of gallons}$$

The correct formula is as follows:—

$$\sqrt{\frac{\left(\frac{X}{Y} - .608\right) \times \frac{4Y^2}{3} \times \text{length}}{231}} = \text{No. of gallons}$$

When Mr. Gough used our formula, for X he substituted 2, and for Y he substituted 1, these terms being in feet. Inasmuch as the contents are reduced to cubic inches and changed to gallons by dividing by 231, the number of cubic inches in a gallon, he should have substituted in inches for X and Y, or 24 and 12. Also, he should have substituted 96 in. instead of 8 ft. for the length of the tank.

According to his substitution, he came out with a wrong result, as follows:—

$$\sqrt{\frac{\left(\frac{2}{1} - .608\right) \times \frac{4 \times 1^2}{3} \times \text{length}}{231}} = 0.253 \text{ gallons.}$$

We have worked the correct formula as given above, substituting in terms of inches instead of feet, and come out with a result that is the same as Mr. Gough gets by his own method.

We regret that a mistake should have occurred in publishing the formula.

THIS WEEK

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

UTICA RADIATOR CORP. FORMED

Formation of the Utica Radiator Corp., Utica, N. Y., was announced November 15 by William C. Murray, former general manager of the Lincoln Radiator Corp. in that city, who resigned his position to take over the work of organizing the new company. The company is capitalized at $175,000, with 3,500 shares of no par value common stock to which the 7 per cent preferred stockholders will be allowed to subscribe for one share at $5. E. C. Reed, former president of the Lincoln Radiator Corp., now a part of the National Radiator Corp., is interested in the new company.

A lease has been taken on the land now occupied by the Lincoln Radiator Corp., which expires March 1, when that company will move to North Tonawanda, N. Y. Operations are expected to start on that date, and about 100 men are expected to be employed at the start. The first year's consumption of the radiators to be manufactured by the new company is said to have been contracted for.

PASSAIC PLUMBING SUPPLY CO. EXPANDS

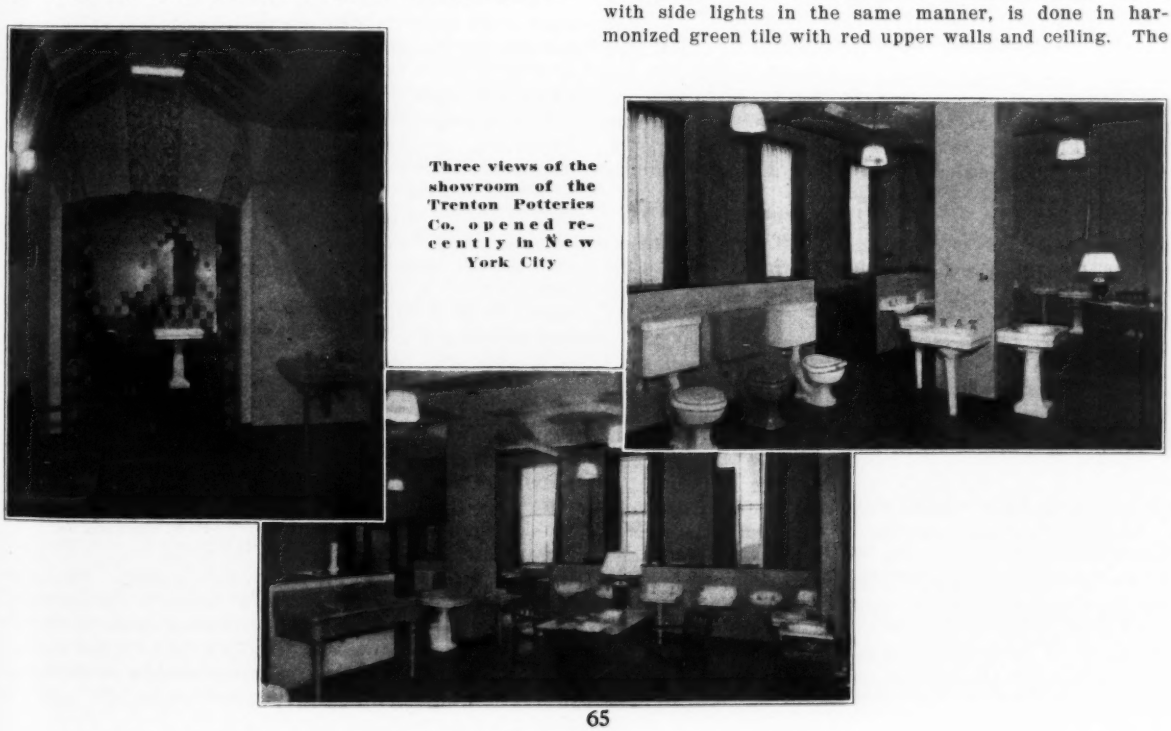
The Passaic Plumbing Supply Co., which has headquarters at 826-36 Main avenue, Passaic, N. J., has purchased the real estate, buildings and stock of the Bergen County Supply Co., Englewood, N. J., from J. Heppenheimer and George E. Wright, the receivers, taking possession on November 28. The plant is a large one, modern in every respect, having been built within the last few years. The tract on which it is built has an area of approximately six acres, and the main building is 150x75 feet, with a large stock of plumbing and heating materials. Railroad sidings are provided, there is an up-to-date pipe shop, and all other necessities for a modern business.

Samuel Eichenbaum, president and treasurer of the purchasing company, announces that a manager and office staff, salesmen, and counter men, will be appointed for the Englewood plant at once, and that it will be operated as a branch of the Passaic Plumbing Supply Co. The branch will be operated under the name of the Interstate Plumbing Supply Co.

Mr. Eichenbaum's reason for the acquisition, he states, is to better serve the customers his firm has in the North Bergen territory.

TRENTON POTTERIES CO. COMPLETES NEW DISPLAY ROOM IN NEW YORK CITY

The Trenton Potteries Co., Trenton, N. J., recently completed work on its new display room at 101 Park avenue, New York City. The show room is attracting such wide attention among plumbing contractors, architects, builders, and others of the industry that it has reached national proportions. Samples of practically all earthenware fixtures of this concern's design and production are presented in an attractive fashion. The complete bathroom, which is in full view of the entrance on the ground floor of the Architects' Building at the end of a wide hall having for its decorations an original futuristic design with side lights in the same manner, is done in harmonized green tile with red upper walls and ceiling. The

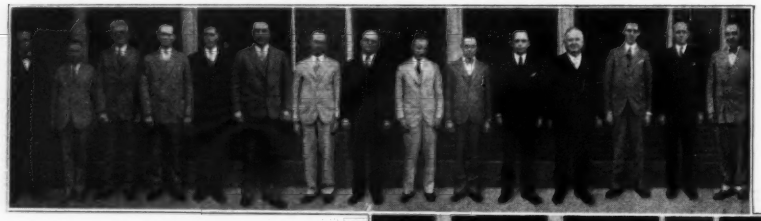


Three views of the showroom of the Trenton Potteries Co. opened recently in New York City

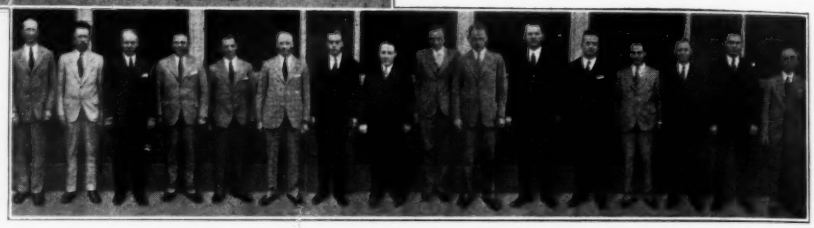
bath tub, lavatory and dental lavatory are in canary, while the closet bowl and tank are marbleized black with black seat—on the whole an exquisite presentation of a symphony in color. The main display room with walls and ceiling finished in a grape color is spacious, having arranged around the outer walls representative pieces of tric dishwashers, washing machines, shower curtains, spigots, soap dishes, etc. A steady stream of visitors, both plumbers and the public in general, were attracted.

Souvenirs of the occasion were given to each person visiting the display.

T. C. Hughes is sales manager of the firm, and George



A group of branch managers of the Sloan Valve Co., Chicago, taken at recent sales meeting in that city



Top picture: A. C. Jones, St. Louis; N. C. Ascher, Indianapolis, Ind.; B. T. Beardsley, Pittsburgh, Pa.; H. O. Anderson, Cincinnati; T. J. Hughes, Grand Rapids, Mich.; H. F. Willis, Des Moines, Iowa; I. L. Roark, Kansas City, Mo.; F. L. Eidman, Baltimore; F. I. Peterson, Buffalo; W. M. H. Grace, Birmingham; R. J. Welsh, Atlanta; William Evans, Dallas; A. F. Loucks, Albany; C. G. Wall, assistant manager, New York City; F. R. Moody, Newark, N. J. Bottom picture: H. E. Coe, Durham, Conn.; S. D. Cochran, Seattle; J. F. Murphy, New York City; E. C. Whalen, Los Angeles; Robert Burns, Philadelphia; L. L. Wright, Detroit; E. J. Henly, Washington, D. C.; H. J. Dubuque, Milwaukee; H. E. Agness, Minneapolis; F. R. Wager, Cleveland; E. C. Fallein, Denver; L. D. McIninch, Greensboro, N. C.; C. H. Dinkelacker, Houston; J. L. Dorset, Richmond, Va.; W. C. Hanley, New Orleans; W. C. Flavin, Boston

the concern's design in both white and color, color predominating. The furnishings are especially chosen to harmonize with the decorative scheme.

The company's New York interests are in the hands of F. C. Allen, manager. Henry Garrity and John Lansing cover New York City. Harold Macormac represents the company in Westchester county and Long Island, while Jesse Thorn covers the Northern New Jersey territory.

TO OPEN WHOLESALE BRANCH IN SYRACUSE

The Hunting Co., wholesalers of plumbing and heating supplies at 30 Exchange street, Rochester, N. Y., is making arrangements to open a branch at Erie boulevard, East and Catherine street, in Syracuse, N. Y. The branch is expected to carry a full line of plumbing and heating supplies, and will be ready for business about January 15, 1929. J. F. Hunting will be in charge of the new branch.

NEW PIPE AND NIPPLE CO. STARTS OPERATION

The Blue Ridge Pipe & Nipple Co., Greenstone, Adams County, Pa., which was recently organized, has started operation. The proprietors of the company are L. E. Beck and C. A. Wills.

APPOINT NEW YORK DISTRIBUTORS

The Germain Mfg. Co., makers of seats and flush tanks at Saginaw, Mich., recently announced that the Cowan Sales Co., 30 Church street, New York City, had been appointed New York sales representative.

OPENS NEW SHOWROOM IN BALTIMORE

The Atlantic Supply Co., wholesalers, of Baltimore, Md., formally opened its new and enlarged quarters at 1730-32-34 Maryland avenue, on Friday, November 23. Starting in 1920 in a modest two-story building, this firm has made such progress that its new building is one of the largest of its kind in Baltimore.

The display at the opening consisted of an elaborate exhibit of colored ware, including accessories such as electric dishwashers, washing machines, shower curtains, spigots, soap dishes, etc. A steady stream of visitors, both plumbers and the public in general, were attracted.

Souvenirs of the occasion were given to each person visiting the display.

T. C. Hughes is sales manager of the firm, and George S. Heller, who was a member of the Maryland state legislature in 1922 and 1924, is a member of the sales force. Previous to his connection with the Atlantic Supply Co., he was employed by the Southern Supply Co. of that city. E. M. Crocker, the owner, has been connected with the plumbing industry for the past eighteen years. For ten years he was with the Southern Supply Co.

BOILER COMPANY BUILDING OFFICE ADDITION

The Fitzgibbons Boiler Co., Oswego, N. Y., has let a contract to the Peter Raby Co. for the enlargement of its present office by the addition of a new building.

ELECTED VICE PRESIDENT OF READING IRON CO.

P. N. Guthrie, Jr., who has been general sales manager of the South Chester Tube Co., has been elected vice president in charge of sales of the Reading Iron Co., Reading, Pa. At the same time it is announced that the general sales offices of this concern will be removed to New York City, and that headquarters will probably be established at 30 Church street in that city.

P. N. Guthrie, Jr.

Mr. Guthrie is well known through years of experience in the pipe and tube industries. He has been connected with the organization which he leaves to accept the new position, for 18 years. The new vice president announces that H. F. Mattern will continue as general sales manager of the Reading Iron Co. when his department is moved to New York City. Other executive departments of the company will remain at Reading, it is stated.

DURO CO. CELEBRATES THIRTEENTH ANNIVERSARY

The Duro Co. of Dayton, Ohio, manufacturers of domestic water systems and water softeners, recently celebrated its thirteenth anniversary. The firm was organized by C. E. Burnett, who is its president. The early history of the company is colorful. Its first home was a room on the second floor of a small Dayton building. Not long after this the firm moved into a small factory building, where it remained for only a few years.

When the next move was made a building was purchased on the site where the present factory stands in Dayton. Three large additions have been built to this original building, and now, the first building is used primarily for offices, cafeteria and assembly hall. The company now has 65 branch offices in this country, out of which approximately 300 salesmen operate.

MAKE CHANGES IN PERSONNEL

H. P. Gant

The York Heating & Ventilating Corp., Philadelphia, announces that H. P. Gant, its vice president, who formerly has been general manager of the conditioning department, is now vice president in charge of both heating and conditioning sales. James A. Carey continues as general sales manager.

D. E. French, formerly general manager of the heating department, is now vice president in charge of production, engineering and research for both heating and conditioning. These changes have been made necessary by the increase of the company's business. Thornton R. Lewis is president of the company.

ESTABLISHES JAPANESE SALES OUTLET

Establishment of new Japanese sales outlets through the Asano Bussan Co. of Tokyo, Japan, one of the largest and most influential importing houses in that country, is announced by C. U. Williams, president of the Williams Oil-O-Matic Heating Corp., Bloomington, Ill.

APPOINTS NEW DISTRIBUTOR

The Botfield Refractories Co., Philadelphia, Pa., has just announced the appointment of the Marshall Supply Co., Inc., as its distributor in Pittsburg, Kans., and Tulsa, Okla.

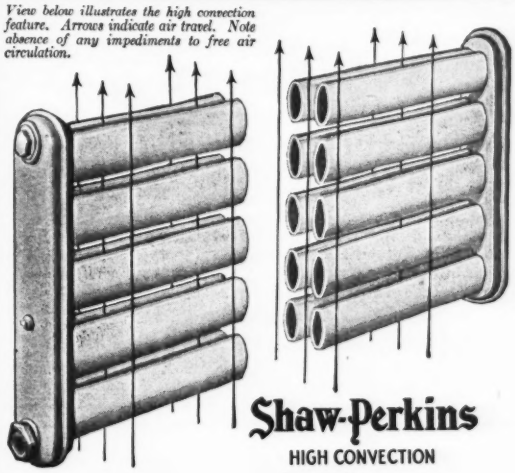
WALWORTH FOREMEN HOLD MEETING

The Foremen's Club of the Walworth Co., Boston, Mass., held its monthly meeting recently at the Hotel Westminster. About 55 foremen were in attendance and enjoyed a fine dinner. Arthur Glessier presided at the meeting and introduced the speakers of the evening. Informal speeches were given by A. O. Brungardt, works manager, W. E. Jackson, general purchasing agent, and J. E. Hart, general superintendent. Following the talks, members of the club attended a theater performance in a body as the conclusion of the meeting.

H. ROMEYN SMITH, INC., MOVES OFFICES

New quarters have been acquired by H. Romeyn Smith, Inc., manufacturers' representatives of New York, for the distribution of the several lines of materials the firm handles. The new address of the offices and warehouse is

View below illustrates the high convection feature. Arrows indicate air travel. Note absence of any impediments to free air circulation.



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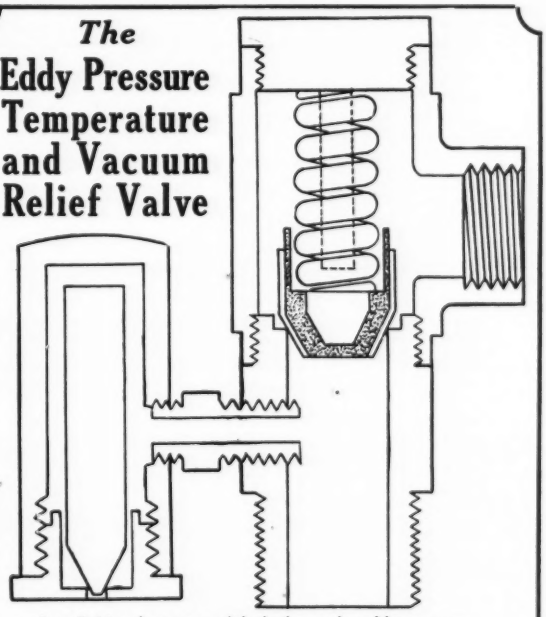

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SQUARE Pipe

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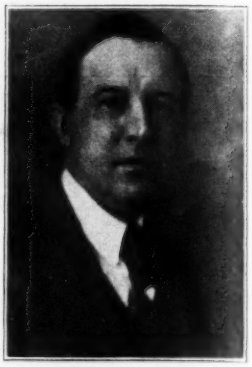
Forty-third avenue and Thirty-sixth street, Long Island City, N. Y. The H. Romeyn Smith organization, under the direction of John H. Taylor, is now in position to handle more advantageously the affairs of the New York branch of the Plomb Tool Co., which is a part of the enterprise, together with the Metropolitan New York distribution of the products of Jenkins Mfg. Co., Bloomfield, N. J.; Semler Co., Jeannette, Pa.; Detroit Brass & Malleable Works, Detroit, Mich.; Kainer & Co., Chicago, Ill., and Vulcatex, Inc., Chicago, Ill.

Personal Mention

Grant Pierce, recently elected president of the National Radiator Corp., Johnstown, Pa., has opened executive offices in New York City, having selected a suite in the building at 55 West Forty-second street. Mr. Pierce, who was manager of the New England branch of the American Radiator Co. before his recent elevation to the presidency of the National corporation, selected headquarters away from the main offices because of the central location and the opportunity it affords for convenient administration of the company's affairs.



Grant Pierce

Louis W. Stierlin, manager of the Los Angeles branch of the O-E Specialty Mfg. Co., Milwaukee, Wis., will be located at the home office of the concern for several months. He plans to return to Los Angeles about March 15.

C. A. Falk, of the W. A. Case & Son Mfg. Co., who has been confined to his home for the past ten weeks from a throat affliction, is back at work in the New York City territory.

E. L. Haskell has recently become affiliated with the sales department of the Chase Copper & Brass Co., Waterbury, Conn. He has severed his other connections with the industry, and will represent the Chase organization in the New England territory, where he is well known on account of his former work.

J. B. Trotman, formerly in charge of commercial sales for Goulds Pumps, Inc., Seneca Falls, N. Y., has recently been made Philadelphia manager for that company to fill the vacancy caused by the resignation of **H. E. Alcott.** Mr. Trotman has been with the Goulds organization for about twenty years, having served as assistant manager of the Philadelphia office for several years, and for the last six years has been at the plant of the company in Seneca Falls.

L. A. Wheaton, formerly with the Salina Supply Co., Salina, Kans., and the Topeka Steam Boiler Works, Topeka, Kans., will represent I. L. Roark & Co., 402 Mutual building, Kansas City, Mo., in the states of Oklahoma and Arkansas. The change takes place January 1, 1929, according to an announcement from **I. L. Roark**, president of the company.

Karl F. Neupert, son of **E. A. Neupert**, vice president and general manager of the Consolidated Supply Co., Portland, Ore., has received an appointment to Annapolis by Congressman Franklin F. Korell, where he will be for the next four years.

Markets

(Continued from Page 56)

enced during the past four weeks as compared with the preceding month, and these same interests express optimism for the last month of the year in that they have in sight a definite substantial amount of new business which must be transacted before January 1. Favorable weather conditions have been instrumental in originating a fair quantity of new developments which otherwise might have been put over until next year, but plumbing and heating contractors are now mostly concerned with finishing installations. Sustained consumption requirements of enameled ware, pottery and house heating boilers and radiators comprise the greater portion of jobbers' sales and consequent needs for replacements result in good shipments being effected by the respective makers.

While wholesalers are trying to bring their stocks down to the desired inventory-taking levels, their continuing good dispositions, of finishing materials especially, with frequent bolstering necessary, make this task a more or less difficult one to execute. Their holdings, however, are sufficient for the present needs of their customers. Factory service in deliveries is not hampered in the majority of cases.

One of the outstanding developments in the price situation during the week was the issuance of new price sheets by most of the large boiler and radiator manufacturers. This readjustment of prices incorporated an approximate 10 per cent increase in prices of tube radiation and advances of from 7 to 10 per cent on the most popular types of boilers. On top of this, most large soil pipe makers advanced their prices to the wholesaler 2½ points.

Soil Pipe

Replacement demand from jobbers does not account for any large sized movements from foundries. Makers delivered a scattered number of carload orders to jobbers' warehouses during the past seven days. Such first of the month deliveries, however, were somewhat affected by reason of wholesalers having anticipated their requirements at the time of the recent advance in prices by makers and also because of the fact that consumption of this commodity has been greatly reduced. During the week a 2½-point advance was made by most producers in their quotations to the wholesalers.

Pipe—Brass, Steel and Wrought Iron

The brass pipe market held the position of strength, both as regards prices and demand, which has characterized it during the past several months. Distributors' transfers of steel pipe into contractors' hands are still of substantial nature, makers consequently finding that their sales over a fortnight period, even though the size of orders reaching their hands is becoming more limited as the year draws to a close, compare quite satisfactorily with their earlier year volumes. Tonnages of steel pipe consumed in this territory are accounted for in large part by heating contractors' sustained activities. While movements of wrought iron pipe are not extensive, mill representatives claim to be in receipt of fair business for this time of the year. Forwardings in all cases are being promptly executed. No price changes have been announced by makers.

Fittings

Wholesalers find that their dispositions of brass and malleable fittings have eased off to some extent, but that the heating trade is still in the market for substantial quantities of cast iron items. Stocks at distributing points are not being allowed to exceed the immediate needs levels, still most representatives, of cast iron fittings pro-

Burnham Boilers Are Easy to Clean

All flue openings are in front. No tricky shaped sections.

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Representatives in all principal cities of the United States and Canada.

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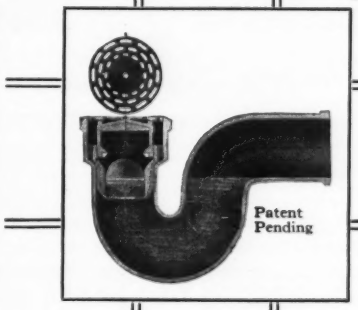

This device affords absolute protection against backwater. It is especially adapted and valuable for existing installations where a backwater trap is needed because it can be installed entirely within a hub. It has no attached parts and its very simpleness is what makes it doubly efficient.

Write for details.

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Flush Valves **for use in combination with all styles of bowls for all classes of service to operate under low or high pressure water supply.**

Water Closets **for every type or class of service.**

Frost Proof Closets. **Direct flush or after flushing.**

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Philip Haas Co., Dayton, Ohio

ducers especially, experience quite satisfactory totals in small-lot, quick deliveries. The price structure of the fittings market is firm, no sheet revisions having been reported by makers. Shipments from sources are being made in satisfactorily prompt manner. Wholesalers are generally able to take care of their customers quickly.

Enameled Ware

Some jobbers are turning over their enameled ware stocks in manner which indicates an active consumption demand, while others, who seem to be in the minority, find that master plumbers are not calling for ware in as large quantities as they were during the early part of November. Wholesalers are not placing orders in excess of their present wants, but there is quite an influx of new business to makers in the form of small quick shipment placements. Manufacturers are optimistic over the totals which have been presented to them. No complaints of delivery extensions have been voiced. Factory prices remain firm and unchanged.

Pottery

With stock taking only three weeks away, jobbers are purchasing only as the needs of master plumbers are indicated. This demand, for staple items, together with releases of special ware for operations which gradually come into the finishing stages, sustains the interest of both potters and wholesalers and accounts for active seasonal forwardings from sources. Makers are usually in position to ship staples on dates requested. A number of potters announced withdrawals of price sheets during the week, but no word of any changes had been received at the time this report was written.

Plumbers' Brass Goods

Representatives of cast and tubular brass goods manufacturers in this section continue to express satisfaction with the pace at which current business is holding. Such statements, even in view of the fact that jobbers are decreasing the stocks on their shelves preparatory for January inventory, are direct reflections of master plumbers' continuing activities in finishing work. The former, however, as well as producers, are not embarrassed through stock deficiencies in making deliveries when called for. Makers' prices continue to be of firm nature, no changes attending.

Range Boilers

Requirements of the plumbing trade for this commodity have not varied in any large way during the past few weeks, and have been comparatively light. Orders relayed to makers by jobbers have been of corresponding dimensions, for the latter are not anxious to increase their stocks in face of spotty demand. All in all, however, makers claim that their totals are well within their expectations for this season of the year. Stocks at sources are such as to permit expeditious forwardings. No price changes have been reported by manufacturers since last week's review.

Boilers and Radiators

Practically all leading boiler and radiator producers in this section announced withdrawals of their June sheets during the past week and immediately effected revisions in their prices to jobbers. Commonly used heating boilers were advanced 7 to 10 per cent; tube radiation prices were increased approximately 10 per cent; wall radiation prices were reduced about 20 per cent, and parlor type heaters were advanced approximately 20 per cent in price. The customary offer by makers to jobbers of three or four days' leeway in placing outstanding business on the old basis, resulted in substantial bookings by manufacturers' salesmen, it is reported. In the contracting field, activities continue to be of broad seasonal dimensions. Deliveries are generally prompt.

SOUTHEAST

Trading Holds Good Pace—

With a continued general upward level of business now and with the volume steadily good, most sellers are of the opinion that the present trend of industrial activity in the Atlanta territory will continue. The month of November, according to most reports, was one of the best of the year, and in many cases was considerably above the average for the same period of last year. Manufacturers and jobbers are maintaining a complete and full stock in anticipation of the good prospects for the month of December and building permits are expected to total well over $4,000,000 in the Greater Atlanta district.

Effective December 3, most soil pipe makers issued new sheets advancing their prices to wholesalers 2½ points. Another price change of note occurred on November 28, when a large number of boiler and radiator manufacturers raised their prices to jobbers. The new sheets carry an approximate advance of 10 per cent on radiation and from 7 to 10 per cent on boilers, according to types.

Soil Pipe

Representatives of manufacturers and jobbers who were interviewed state that there is little change in the turnover of soil pipe and business in this line is maintaining a steady pace. Wholesalers are getting prompt deliveries from the manufacturers. On December 3 most manufacturers announced an advance of 2½ points in their prices to wholesalers.

Pipe—Brass, Steel and Wrought Iron

The demand for pipe thus far this month has been rather quiet and buyers for jobbers are exercising caution in placing orders for shipments of steel, wrought iron and brass pipe. Brass pipe producers have not changed their prices and this market is reported firm. The nearing of the inventory season seems to be influencing the placing of orders for pipe and, in general, wholesalers are stocking just enough to carry them through this period. Mill prices on steel and wrought iron pipe are reported firm and unchanged.

Fittings

Manufacturers' shipments are quite steady and, in general, business in this line is good. Some producers find a slight increase in demand for brass valves and brass fittings. Cast iron flanged fittings are also moving well, and this is attributed in many instances to the greater activity in the heating field. Manufacturers and jobbers have not changed their price sheets, and their stocks are of good size.

Pottery

Most pottery plants are turning out orders with the minimum of delay and contractors report no change in the demand for pottery. Business in this line is quite good, with contractors' requirements holding up well. Manufacturers have announced no change in their prices.

Enameled Ware

There has been no price change in enameled ware. The approaching inventory period is making itself felt, and, while business is fair, most jobbers are conservative in placing orders, rather expressing the desire to keep their stocks sufficient to meet current needs only. Master plumbers have placed only small orders, but demand from this quarter is expected by some sellers to increase slightly with the starting of new work this month.

Plumbers' Brass Goods

Cast and tubular brass goods are moving at a fairly steady rate, and a generally nice business is felt. Factory shipments are being made promptly and the price situa-

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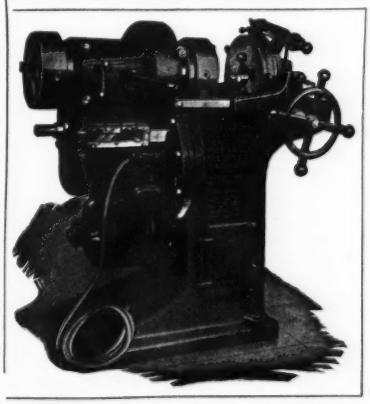

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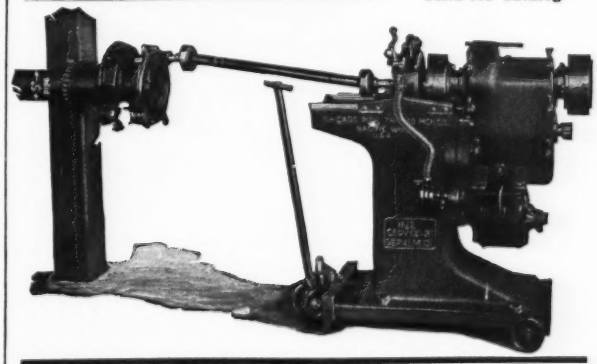

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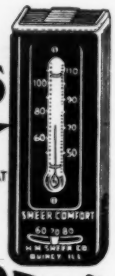

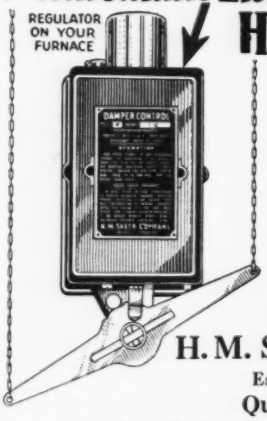

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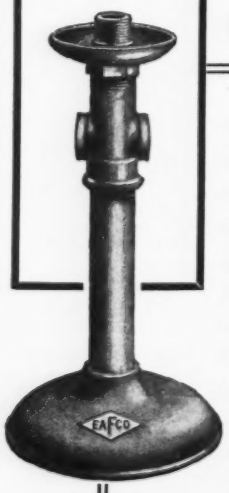

In the "Eafco" you will find a range boiler stand readily adaptable to every need. It is adjustable to any height and will stand up under the heaviest loads. Ask your jobber to show you this stand. But be sure you see the name "Eafco" on the base. Then you know it is a genuine Eastern Foundry Product.

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Boyertown, Pennsylvania

tion is reported firm and unchanged. Master plumbers, in general, are placing orders in size to take care of their present business.

Range Boilers

Orders for range boilers have fallen off slightly of late and there seems to be a sufficient supply on hand to take care of business for the remainder of the year. Contractors report no difficulty in getting deliveries.

Boilers and Radiators

During the week most manufacturers advanced their prices to wholesalers approximately 10 per cent on radiation and from 7 to 10 per cent on the different types of boilers. It is reported that many wholesalers have reflected these higher prices in their quotations to the trade.

PACIFIC COAST

Coast Business Holds Seasonal Level—

Demand for materials on the whole is not heavy, and business seems to be better in some sections than in others. Generally speaking, most distributors are carrying sufficient stocks to take care of the trade's immediate needs, re-ordering in about the same volume as sales. Merchandise of all classes can be promptly had from various manufacturing sources and little delay is experienced by jobbers in replenishing their stocks.

Soil Pipe

The sales of soil pipe from jobbers' stocks continue to be mostly in small lots for immediate requirements and, on the whole, a fair tonnage is moving at present. Coast distributors as a rule carry approximately a ninety day stock, with the result that all of the trade's present needs can be promptly filled from stocks on hand.

Pipe—Steel and Wrought Iron

The demand for steel pipe showed little if any increased activity during the week, and most sales from jobbers' stocks continue to be in small lots for immediate requirements. Sales are about normal for this period of the year. Wrought iron pipe is moving in a fairly substantial volume, with most of the trade purchasing only as the need for this commodity arises.

There are many distributors besides the plumbing supply jobbers of steel pipe with the result that the trade's needs can be promptly filled without delay. Distributors' stocks of both wrought iron and steel pipe are well balanced.

Fittings

Malleable and cast iron fittings continue to move mostly in small lots, with the trade purchasing only as definite needs are created. Most distributors have well assorted stocks and all of the trade's needs can be promptly filled. Prices remain unchanged.

Enameled Ware

Enameled ware is moving from jobbers' stocks in about the same volume as it has maintained for the past few months, and most sellers see little indication of any change before the spring building opens up. Most distributors have fair stocks.

Pottery

Little change was noted during the week in the demand for pottery, which continues to move in a moderate volume with most sales in small lots for immediate shipment.

Plumbers' Brass Goods

An active demand for this commodity continues which, if anything, appears to be on the increase. Distributors' stocks as a rule are in good shape and the latter can secure early delivery from all manufacturing sources. Distributors' prices to the trade are unchanged.

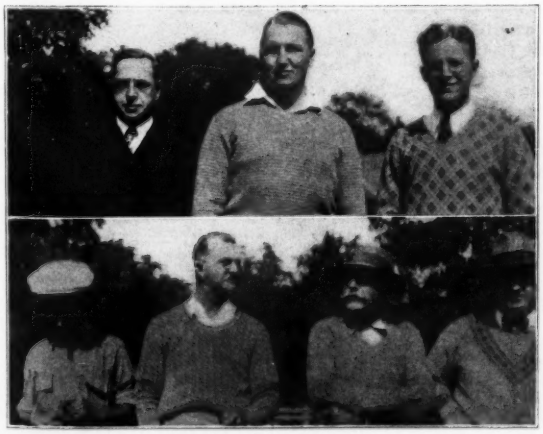
BUILDING PERMITS FOR OCTOBER 1928

During the month of October $240,552,100 worth of permits were granted in 208 cities, according to the city building departments in these cities to the F. W. Dodge Corporation. Last month's total was 7 per cent in excess of the September 1928 total and there was a gain of almost $1,000,000 over the October 1927 record. One hundred and six cities showed increases and one hundred and one showed losses when compared with their October 1927 records. Little Rock, Arkansas, reported the same amount in permit valuations as in October of last year.

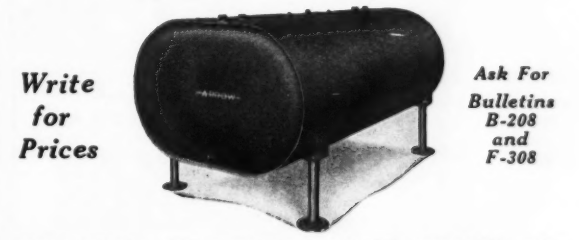
Last month's record brought the amount of permits granted in these 208 cities since the first of this year up to $2,766,959,300, as compared with $2,792,104,300 for permits granted during the first ten months of last year, the decrease being 1 per cent.

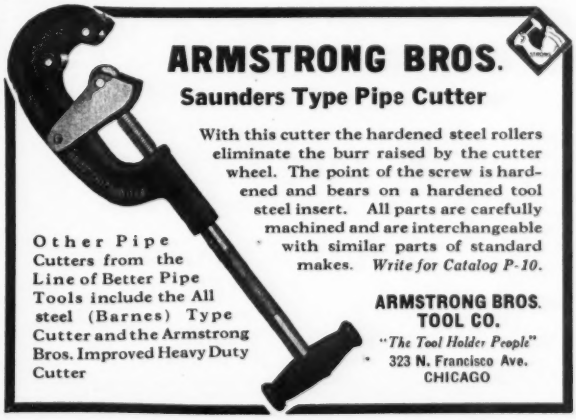
October "honor roll" cities (those reporting more than a million dollars in permit valuations and a gain of 20 per cent or more over their October 1927 records) numbered twenty-three. These cities are as follows: Long Beach, Calif., San Francisco, Washington, D. C., Atlanta, Indianapolis, South Bend, New Orleans, Boston, Worcester, Detroit, Pontiac, Minneapolis, St. Joseph, Camden, Mount Vernon, Yonkers, Akron, Erie, Providence, Knoxville, Houston, Seattle and Milwaukee.

	October, 1928		October, 1927	
	No. of Permits	Valuation	No. of Permits	Valuation
Alabama—				
Birmingham	592	$1,200,400	597	$2,227,500
Arkansas—				
Fort Smith	186	50,500	192	64,000
Little Rock	114	214,900	143	214,900
California—				
Alameda	73	389,300	73	121,700
Berkeley	275	367,700	327	648,200
Compton	59	176,600	22	45,000
Fresno	210	122,000	100	193,900
Glendale	127	368,000	149	744,100
Long Beach	528	1,773,000	422	634,700
Los Angeles	3,121	7,655,500	3,676	10,388,100
Oakland	567	1,162,300	647	1,444,600
Pasadena	217	411,900	227	592,400
Sacramento	221	656,700	276	363,800
San Diego	554	1,226,500	793	1,210,300
San Francisco	764	5,687,400	769	2,518,400
San Jose	112	192,900	85	300,300
Santa Ana	92	214,500	62	243,500
Stockton	84	168,000	83	145,800
Colorado—				
Colorado Springs	83	59,600	71	29,200
Denver	774	1,255,500	723	1,212,300
Pueblo	134	160,200	160	145,600



Top row: W. N. Pincus, R. E. Moore and N. Paul Fenner. Bottom row: J. B. Speck, E. E. Bolte, W. H. Chenoweth and R. D. Berry. Photos taken at a recent meet of the Western Trade Golf Association

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Saunders Type Pipe Cutter
With this cutter the hardened steel rollers eliminate the burr raised by the cutter wheel. The point of the screw is hardened and bears on a hardened tool steel insert. All parts are carefully machined and are interchangeable with similar parts of standard makes. Write for Catalog P-10.
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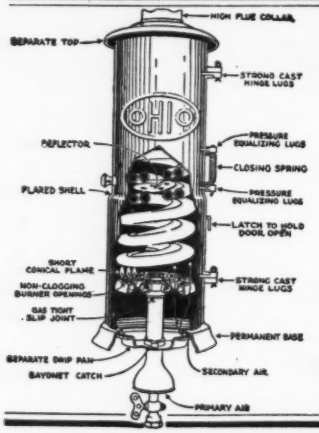

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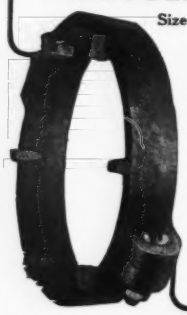

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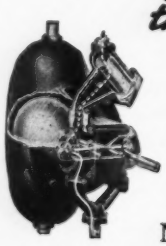
People forget to turn feed water on or off—but this new self-cleaning duplex feeder is built to remember *always*. The self-cleaning feature takes it out of competition. Write for new booklet.
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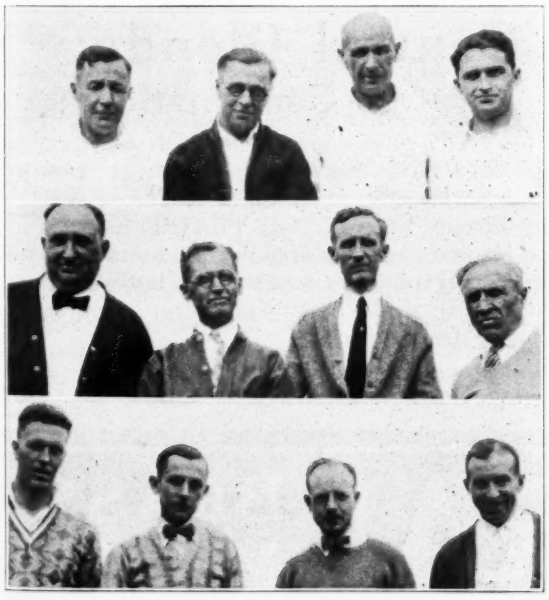
Self-Cleaning Duplex Feeder

	October, 1928		October, 1927	
	No. of Permits	Valuation	No. of Permits	Valuation
Connecticut—				
Bridgeport	153	271,900	158	262,900
New Haven	196	767,500	188	307,800
Delaware—				
Wilmington	140	437,300	105	693,700
District of Columbia—				
Washington	550	2,905,000	567	2,272,700
Florida—				
Daytona Beach	39	60,800	49	50,700
Jacksonville	381	532,100	416	1,001,400
Lakeland	14	7,200	28	11,700
Miami	290	147,500	334	282,100
Pensacola	117	67,800	79	224,100
Tampa	330	281,300	348	401,400
Georgia—				
Atlanta	398	1,756,000	371	833,100
Augusta	869	78,800	310	112,100
Macon	182	109,200	189	203,700
Savannah	60	216,300	59	403,300
Idaho—				
Boise	97	101,800	123	69,700
Illinois—				
Aurora	80	207,700	87	208,200
Chicago	834	27,840,400	917	25,076,800
Decatur	110	234,700	140	1,134,100
East St. Louis	97	242,300	47	289,300
Evanston	127	618,500	165	758,200
Maywood	53	84,100	50	91,900
Peoria	147	667,500	110	175,400
Rockford	192	451,100	216	648,600
Springfield	155	440,500	127	183,600
Indiana—				
Elkhart	81	91,900	63	76,300
Fort Wayne	149	414,200	195	358,700
Gary	183	393,700	255	1,109,900
Hammond	99	447,600	125	346,300
Indianapolis	985	2,381,600	1,218	1,556,600
Richmond	54	85,100	57	91,400
South Bend	411	1,021,700	382	304,900
Terre Haute	160	70,500	167	94,300
Iowa—				
Cedar Rapids	124	219,000	155	92,500
Davenport	117	181,200	138	175,600
Des Moines	155	291,600	153	352,700
Dubuque	71	33,700	112	108,400
Mason City	76	60,400	46	118,100
Sioux City	90	368,700	75	129,100
Waterloo	249	173,700	154	356,000
Kansas—				
Kansas City	107	182,600	111	114,000
Topeka	146	314,500	129	150,600
Wichita	232	546,300	232	570,900
Kentucky—				
Covington	48	90,300	44	78,200
Lexington	68	155,600	71	119,700
Louisville	314	1,424,400	267	2,107,600
Louisiana—				
New Orleans	227	1,740,900	231	1,284,800
Shreveport	304	433,300	239	252,500
Maine—				
Portland	290	738,600	145	258,000
Maryland—				
Baltimore	1,616	1,610,500	1,825	2,086,300
Cumberland	18	46,100	26	26,100
Massachusetts—				
Beverly	51	111,600	60	231,800
Boston	837	5,388,900	889	3,505,100
Brockton	96	120,200	94	84,000
Cambridge	106	367,300	131	325,200
Chelsea	33	79,400	27	53,700
Chicopee	36	165,100	32	52,500
Fall River	49	185,800	78	92,000
Fitchburg	20	26,600	24	203,200
Haverhill	32	49,600	32	30,300
Holyoke	29	77,500	41	193,000
Lawrence	27	29,300	28	151,000
Lowell	59	61,700	82	59,400
Lynn	55	294,700	68	297,800
Medford	147	674,300	99	195,000
New Bedford	52	70,900	85	124,700
North Adams	63	15,900	67	38,600
Quincy	259	952,400	256	771,300
Salem	85	134,100	95	128,000
Somerville	63	137,600	50	92,100
Springfield	162	540,400	152	700,700

	October, 1928		October, 1927	
	No. of Permits	Valuation	No. of Permits	Valuation
Waltham	71	278,600	67	211,100
Worcester	180	1,351,500	232	534,200
Michigan—				
Battle Creek	86	319,900	81	405,100
Bay City	113	77,400	111	42,400
Detroit	2,912	12,522,600	2,531	7,812,700
Flint	754	1,060,500	970	1,473,700
Grand Rapids	628	722,700	627	651,900
Jackson	148	343,900	119	473,700
Kalamazoo	157	176,600	162	151,700
Lansing	174	279,400	151	767,400
Pontiac	317	1,139,800	288	865,900
Saginaw	231	643,300	159	1,437,500
Minnesota—				
Duluth	173	321,900	247	186,700
Minneapolis	677	3,217,000	722	1,304,800
St. Paul	522	1,076,700	486	1,043,400
Mississippi				
Jackson	36	165,200	136	143,800
Missouri—				
Kansas City	261	879,800	343	1,402,000
St. Joseph	55	1,248,800	64	57,700
St. Louis	1,168	2,939,800	1,387	3,181,900
Montana—				
Butte	21	13,000	19	8,400
Nebraska—				
Lincoln	119	229,700	135	1,183,600
Omaha	148	783,500	108	319,000
New Hampshire—				
Manchester	132	204,200	133	110,200
New Jersey—				
Atlantic City	127	194,900	50	351,300
Bayonne	54	351,000	30	189,700
Camden	100	1,626,000	131	333,300
East Orange	140	846,600	149	2,345,100
Elizabeth	134	498,600	120	963,800
Hoboken	21	60,600	27	260,000
Jersey City	104	1,542,400	96	1,399,300
Newark	410	2,112,900	527	4,047,500
Orange	66	129,000	65	445,200
Passaic	186	180,000	172	346,600
Paterson	242	525,700	222	507,300
Plainfield	128	190,100	79	538,000
Trenton	129	304,300	132	345,400
New Mexico—				
Albuquerque	68	166,000	104	236,900
New York—				
Auburn	30	37,800	30	32,800
Binghamton	351	183,300	321	314,000

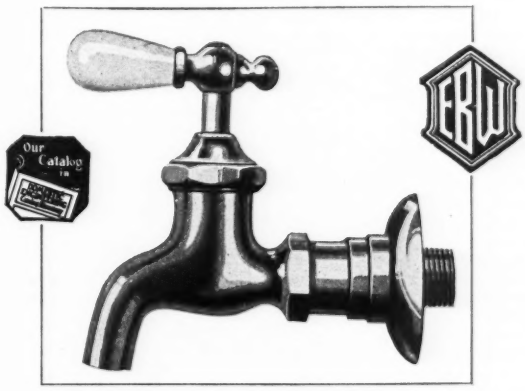


Top row: R. T. English, B. E. Bowers, J. K. Kewley and Leo O'Leary. Middle row: C. Senf, C. Rothert, H. J. Rogers and H. Wachter. Bottom row: T. J. Hughes, P. H. Harrod, H. D. Bullock and A. L. Vanderhoff. Photos taken at the meet of the Northwestern Ohio Trade Golf Association

An Ever Growing Demand

In plumbing circles and in consumer circles, Enterprise Brass Goods are becoming more and better known for their unusually high quality. The demand for Enterprise products is accordingly growing. Order Enterprise goods from your jobber.

ENTERPRISE BRASS WORKS
Muskegon, Michigan



reputation!

The reputation of Trenton Brass Products comes from the service they have rendered. The service they are noted for comes from the superior quality that is so distinctive of them.

Ask your jobber to supply you

The Trenton Brass & Machine Company
TRENTON, NEW JERSEY

Our Catalog

Represented by Rollin C. Wilson
7 E. 42nd St., New York, N. Y.
261 Franklin St., Boston, Mass.
13 North Ave., East, Cranford, N.J.

	October, 1928		October, 1927	
	No. of Permits	Valuation	No. of Permits	Valuation
Buffalo	503	1,781,400	587	2,377,200
Mount Vernon	74	1,035,600	85	798,700
Bronx	895	10,570,700	1,010	10,986,700
Brooklyn	2,337	15,738,000	2,246	18,977,400
Manhattan	263	20,279,400	265	18,595,700
Queens	1,627	8,656,500	1,123	12,365,500
Richmond	346	1,276,300	246	871,300
N. Y. City (All Boros)	5,468	56,520,900	4,890	61,796,600
Niagara Falls	147	229,100	129	369,400
Schenectady	109	287,500	95	203,900
Syracuse	302	1,214,900	391	2,245,400
Troy	77	96,400	88	230,200
Utica	72	415,900	46	419,100
Watertown	114	75,700	104	52,000
Yonkers	166	2,146,200	202	1,853,900
North Carolina—				
Asheville	72	193,300	74	205,400
Charlotte	126	464,900	89	364,400
Durham	57	207,400	64	295,900
Greensboro	94	363,500	147	395,700
Wilmington	23	55,300	20	43,900
Winston-Salem	199	302,900	191	342,800
North Dakota—				
Fargo	44	170,800	39	119,200
Ohio—				
Akron	614	2,432,100	568	1,347,100
Canton	176	324,700	197	284,100
Cincinnati	1,992	4,064,500	1,830	4,107,200
Cleveland	1,056	3,717,300	1,138	3,773,100
Columbus	442	941,700	568	1,714,800
Dayton	254	394,400	254	553,400
Hamilton	93	171,300	74	82,400
Mansfield	61	162,100	67	135,600
Sandusky	28	31,500	35	36,300
Springfield	90	175,000	106	150,700
Toledo	535	939,800	578	899,200
Youngstown	170	382,500	250	696,500
Oklahoma—				
Muskogee	32	56,400	22	118,600
Oklahoma City	331	2,144,400	221	3,117,100
Oregon—				
Portland	909	1,348,300	976	2,212,400
Pennsylvania				
Allentown	54	503,300	66	402,200
Altoona	142	111,300	134	253,400
Bethlehem	79	204,300	65	115,400
Easton	23	33,900	27	69,600
Erie	188	1,372,400	189	412,300
Johnstown	46	99,100	57	76,000
Lancaster	89	201,100	65	470,800
Philadelphia	897	5,735,500	892	8,047,400
Pittsburgh	659	1,923,600	662	3,529,200
Reading	204	429,400	180	338,700
Scranton	116	162,500	115	205,400
Wilkes-Barre	132	742,300	117	232,900
York	108	332,100	51	10,100
Rhode Island—				
Providence	565	1,086,600	571	707,700
South Carolina—				
Charleston	45	204,600	42	42,600
Columbia	84	79,800	68	90,600
Greensville	52	93,300	37	66,800
South Dakota—				
Sioux Falls	32	107,100	23	65,300
Tennessee—				
Chattanooga	369	520,300	318	391,200
Knoxville	251	1,105,700	215	260,500
Nashville	262	274,500	343	523,100
Texas—				
Beaumont	181	313,800	186	265,800
Dallas	226	552,700	266	451,700
El Paso	98	160,500	72	206,200
Fort Worth	345	851,000	332	1,114,000
Galveston	205	105,300	267	155,900
Houston	445	3,014,200	520	2,317,900
San Antonio	320	822,900	368	948,500
Utah—				
Ogden	18	27,600	25	47,800
Salt Lake City	77	388,100	70	349,800
Virginia—				
Norfolk	168	484,500	182	258,700

Fig. 1120

Crome Plating
Enriches This
Central Blendo
Lavatory Combination

PRESENTING an old friend in a new apparel—the dependable Blendo Lavatory Fixture with CROME PLATED handles and escutcheons. A striking all metal, all-time finish that does credit to any bathroom. Easily adjusted to any lavatory. Simple, positive drain action.

Ask Your Wholesaler To Show It

The CENTRAL BRASS MFG. CO.
CLEVELAND, OHIO.

	October, 1928		October, 1927	
	No. of Permits	Valuation	No. of Permits	Valuation
Richmond	163	321,000	105	635,600
Roanoke	78	155,500	110	175,100
Washington—				
Everett	262	93,900	94	34,800
Seattle	859	3,113,000	839	1,296,300
Spokane	252	368,000	225	461,800
West Virginia—				
Charleston	68	259,200	58	135,900
Huntington	42	62,000	57	103,500
Wheeling	93	238,900	81	154,700
Wisconsin—				
Kenosha	176	696,800	170	302,900
Madison	204	832,100	217	419,800
Milwaukee	752	4,504,500	854	6,035,900
Oshkosh	155	128,800	132	139,000
Racine	136	623,200	150	443,200
Sheboygan	193	180,300	191	208,000
Wyoming—				
Cheyenne	24	97,200	32	77,800
Total—208 Cities	58,873	$240,552,100	59,283	$239,652,700

THIS WAS NEWS 1908 20 YEARS AGO

December 5, 1908

Schwartz Plumbing Supply Co., of New York City, has just been incorporated. The directors are: I. Schwartz, R. Solomon and William G. Solomon.

—1908—

The annual entertainment and ball of the Master Plumbers' Association of Brooklyn, N. Y., will be held on Wednesday evening, January 20, at the new Academy of Music, Lafayette avenue.

—1908—

At the last council meeting in Davenport, Iowa, a new plumbing ordinance was adopted. At the next meeting of the Iowa legislature, a bill will be introduced making it compulsory for all plumbers to pass an examination in order to work.

—1908—

The Chicago Steam Trades' Round Table Club held a meeting at the Illinois Athletic Club, 145 Michigan boulevard, Chicago, on Monday evening, November 30, at which a permanent organization was formed. After the meeting an excellent dinner was served, following which the party adjourned to the gymnasium, where an indoor baseball game was enjoyed.

—1908—

The Spencer Plumbing Co. of New York City has been incorporated to conduct a plumbing business.

—1908—

Commissioner of Health G. A. Bading, of Milwaukee, Wis., is planning to introduce into the Common Council a resolution which will provide for obtaining figures as to the cost of erection and maintenance of public comfort stations.

—1908—

Herbert S. Humphrey of Kalamazoo, Mich., has received patent on a water heater.

—1908—

Diederich Brothers, Jamaica, N. Y., have moved their plumbing and heating business into new quarters at 450 Fulton street.

C. T. Bross, plumbing contractor of Ranier, Ore., was elected mayor of the town in the recent election.

No. 19A

The New Handy Catalog

EVERY plumber and fitter should have this convenient little booklet which gives complete information in short sentences and clearly defined tabulations.

The No. 19A is a miniature directory of facts regarding the famous line of

GENUINE
ARMSTRONG
PIPE TOOLS

May we send you a complimentary copy? No obligations, just mail the coupon.

THE ARMSTRONG MFG. CO.
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Founded 1869

THE ARMSTRONG MFG. CO.,
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Please send Handy 19A Catalog.

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D. E. 12

The New Thatcher ELITE Enamel Jacketed Boiler

What Better Boiler for an Oil Burner?

NOWADAYS prospects ask—"May an oil burner be installed in this boiler?"

Your answer is "yes" when referring to the new Thatcher "Elite" enamel jacketed boiler.

Aside from its attractiveness you may call attention to the extending front on the ash pit, which allows ample room for the brick lining generally used with oil burners.

Impress on your prospects that the efficiency of an oil burner is no greater than that of the boiler in which it is used, and that in choosing the new Thatcher "Elite" enamel jacketed boiler, they are insuring satisfactory boiler performance. Thatcher "Staggered Fire Travel" as embodied in the "Elite" is the ideal construction to promote oil burner heating efficiency. Write for additional details.

THATCHER STAGGERED FIRE TRAVEL

THE THATCHER COMPANY
39-41 St. Francis St., Newark, N. J.
New York: 21 West 44th St. Chicago: 341 No. Clark St.

THATCHER
BOILERS-FURNACES-RANGES

Convention Dates

December 12, 1928.—UTAH—The regular quarterly convention of the Utah State Association of Sanitary and Heating Engineers, to be held at Salt Lake City.

January 10 and 11, 1929.—SOUTH DAKOTA—The ninth annual convention of the South Dakota State Association of Master Plumbers, to be held in Huron.

January 14, 15 and 16, 1929.—PRESIDENTS AND SECRETARIES—The seventh annual Presidents' and Secretaries' Conference of the Plumbing and Heating Industries Bureau, to be held in the Florentine Room of the Congress Hotel, Chicago.

January 22, 23 and 24, 1929.—ILLINOIS—The thirty-seventh annual convention of the Illinois Master Plumbers Association, to be held at Peoria, with headquarters at the Pere Marquette Hotel.

January 28, 29, 30 and 31, 1929.—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers, at Chicago, Ill.

January 29, 30 and 31, 1929.—WISCONSIN—The thirty-fifth annual convention of the Wisconsin Master Plumbers' Association, to be held in Milwaukee, with headquarters at the Hotel Pfister.

February 5, 6 and 7, 1929.—OHIO—The thirty-eighth annual convention of the Ohio State Association of Master Plumbers, to be held in Mansfield, with headquarters at the Mansfield-Leland Hotel.

February 12-16, 1929.—POWER SHOW—The fourth annual Midwest Power Engineering Conference and Exposition, to be held at the Coliseum, Chicago.

March 11, 12 and 13, 1929.—INDIANA—The thirty-third annual convention of the Indiana Society of Sanitary Engineers, to be held at South Bend.

March 11, 12 and 13, 1929.—VIRGINIA—The sixth annual convention and a two-day institute of the Virginia Associated Plumbing and Heating Contractors, to be held at Charlottesville.

March 25 and 26, 1929.—MISSOURI—The forty-fifth annual convention of the Missouri State Association of Master Plumbers, to be held in Springfield.

April 2, 3 and 4, 1929.—A. O. B. A.—The annual convention of the American Oil Burner Association, to be held at New York City.

April 16 and 17, 1929.—NEW YORK—The forty-first annual convention of the New York State Association of Master Plumbers, to be held at Schenectady.

April 25 and 26, 1929.—LA.-MISS.—The eighth annual convention of the Louisiana-Mississippi Association of Plumbing and Heating Dealers to be held at Gulfport, Miss., with headquarters at the Markham Hotel.

May 6 and 7, 1929.—FLORIDA—The seventh annual convention of the Florida State Association of Master Plumbers and Heating Dealers, Inc., to be held at Daytona Beach.

May 23, 24 and 25, 1929.—N. A. P. H. S.—The fourth annual convention of the National Association of Plumbing and Heating Salesmen, to be held at Philadelphia.

June 25, 26 and 27, 1929.—N. A. M. P.—The forty-seventh annual convention of the National Association of Master Plumbers, to be held at Buffalo, N. Y., with headquarters at the Hotel Statler.

COMING TRADE EVENTS

December 12, 1928.—The open meeting of the Bronx branch, Association of Master Plumbers of the City of New York, to be held at the Bronx Masonic Temple, 1931 Washington avenue.

December 12, 13 and 14, 1928.—The fourth annual conference on welding to be held at Purdue University, Lafayette, Ind.

December 14, 1928.—Conference for the adoption of a commercial standard for brass pipe nipples, at the William Penn Hotel, Pittsburgh, Pa. The conference begins at 10 a. m.

December 19, 1928.—A beefsteak dinner, to be held by the Manhattan branch, Association of Master Plumbers of the City of New York at the Building Trades Employers Club, 2 Park avenue.

January 10, 1929.—An open meeting for both divisions of the Manhattan branch, Association of Master Plumbers of the City of New York, to be held at the Building Trades Employers Club, 2 Park avenue.

THE TRADE

NEWS FOR PLUMBING AND HEATING CONTRACTORS

ASSOCIATION OFFICERS TO MEET IN CHICAGO

Many problems that are vital to the success of each one of the approximately five hundred national, state and local associations within the plumbing and heating industry will be fully discussed by association leaders at the seventh annual conference of association officers, which is to be held at the Congress hotel, Chicago, January 14, 15 and 16, 1929, under the auspices of the Plumbing and Heating Industries Bureau.

How to organize and finance an association, how to get free newspaper publicity for the work done by association members, how to carry out an association advertising program, and what are the best association activities, are some of the topics to be discussed at the meeting.

"Speeding up the success of contractors by organizations" will be the central theme of the conference. With various branches of the plumbing and heating industries united in a national advertising program, this meeting of association officials will concentrate attention on one uniform, nation-wide program for the use of all associations.

"Organization spells success. The whole program of the industries can only be made effective through group selling," said William G. Bergner, secretary of the bureau, who is in charge of association work, in speaking of the coming conference.

One of the principal subjects to be discussed is that of a manual for association officers to use in the guidance of association affairs. This manual is being prepared with the assistance of members of the educational committee of the National Association of Master Plumbers, and it will treat with the "hows" and "whys" of association work.

One of the objects of the conference is to develop a better understanding of the work the associations should concentrate on in order to best serve their members.

On the first day of the conference the heating secretaries and officers will meet in separate sessions from those of the master plumbers. The master plumber group will do likewise on the first day. The second and third days' meetings will be joint affairs, attended by both groups.

Not merely officers of associations, but all association members are invited to attend this conference. All who expect to attend are urged to send in their reservations at once to the bureau because the month of January is a busy one for Chicago hotels.

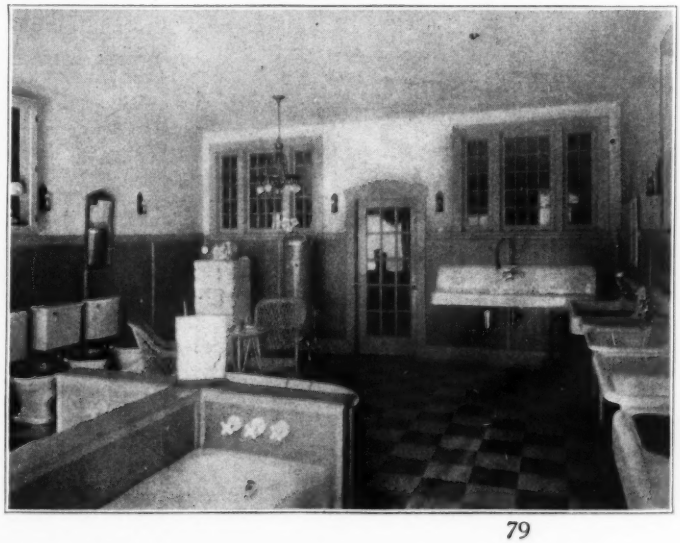
PLAN NEW YORK STATE CONVENTION

The executive board of the New York State Association of Master Plumbers has decided upon Schenectady as the place for the annual state convention of that body. The convention will be held on April 16 and 17, 1929. George W. Frank of Buffalo is president of the state association.

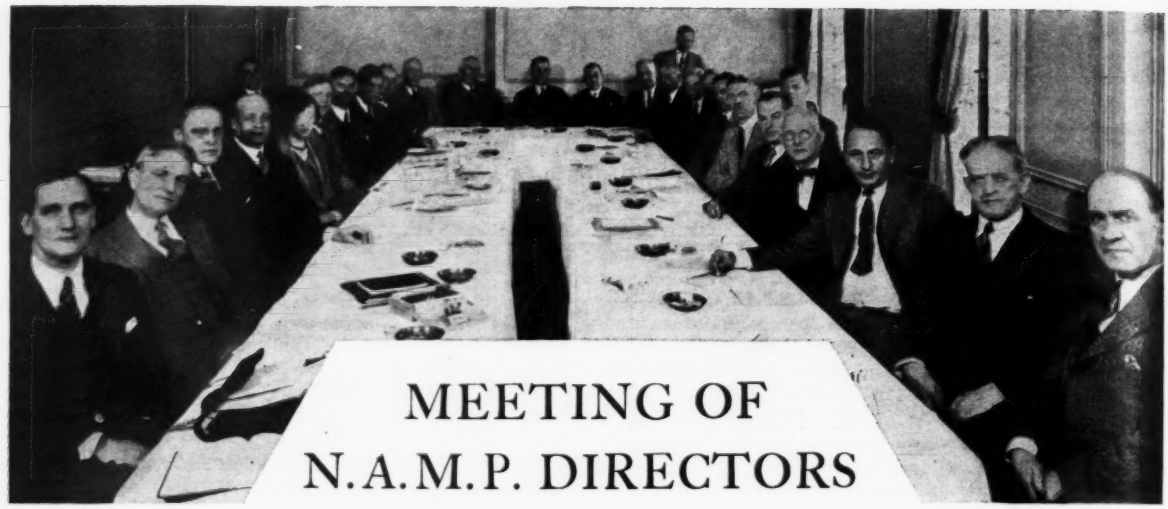
HOLD ZONE MEETING IN KANSAS

A meeting of Zone 11 of the Kansas Master Plumbers' Association was held in Baxter Springs, Kan., on Saturday, November 24, with guests from Oklahoma and Arkansas among those present. The next meeting of Zone 11 will be held December 22 in Parsons, and will be held for the ladies of the members.

Opens Showroom in Curwensville, Pa.



IN CLEARFIELD, Pa., A. Boyd Thorn & Son are well-known plumbing and heating contractors. They recently opened a new branch store and shop at Curwensville, Pa., a photograph of which is shown at the left. In starting out with a branch in the latter city, the company, as most plumbing and heating companies do, created an attractive display room and show window to call attention to their line of business and to draw business for the new enterprise.



MEETING OF N.A.M.P. DIRECTORS

Above, around the table from left to right: Albert B. Dibble, John J. Vogelpohl, William J. Lang, George B. Drake, William C. Groeniger, William F. Hildeman, John F. Donovan, James S. Cassedy, Edwin D. Hornbrook, Alfred C. Eynon, John A. Quinn, Jere Sheehan, Jr., E. L. Penfrase, Frank J. Fee, Wilbur R. Dosher, H. O. Green, C. B. Connelley, L. McNamara, William G. Bergner, Charles M. Swinnerton, Roy E. Thompson, John J. Shanahan, Richard G. Thomas, A. G. Rose, Frank B. Lasette and Thomas F. Nolan.—Below: Jere Sheehan, Jr., national president, and Ed. L. Penfrase, national secretary, both of St. Louis

PLANS for the organization's forty-seventh annual convention, to be held in Buffalo, N. Y., were discussed at length at the regular fall meeting of the board of directors of the National Association of Master Plumbers, held November 12, 13 and 14 at St. Louis, Mo. Jere Sheehan, Jr., president, was in charge and reports were heard from the committee chairmen, and other items of importance to the association were discussed.

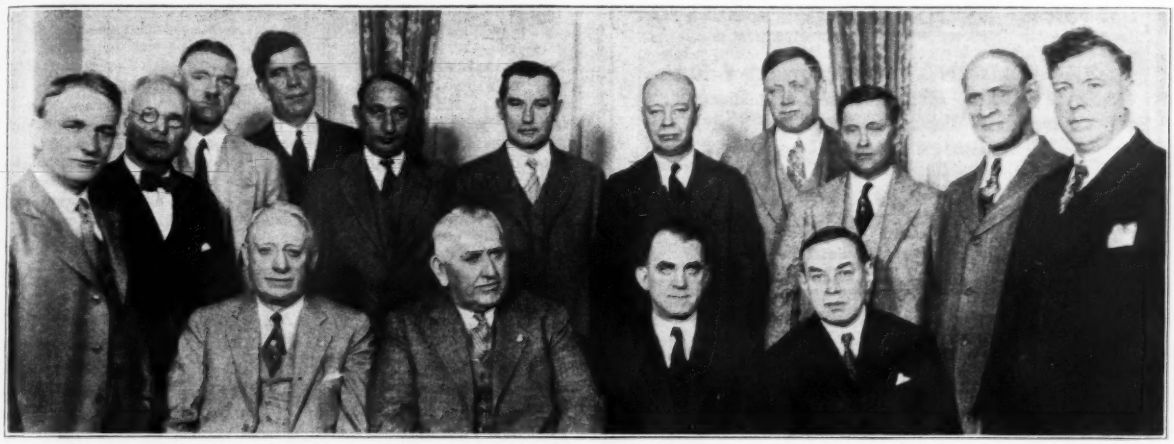
Besides a complete attendance of all the officers and directors of the national association, several past presidents and other men of importance in the industry sat in on a part of the sessions. The officers and directors who were in attendance at the meeting were: Jere Sheehan, Jr. of St. Louis, president; John A. Quinn of Philadelphia, vice president; Alfred C. Eynon of Canton, Ohio, treasurer; Ed. L. Penfrase of St. Louis, secretary; James S. Cassedy of Cambridge, Mass.; Wilbur R. Dosher of Wilmington, N. C.; H. O. Green of Tulsa, Okla.; William F. Hildeman of Chicago Heights, Ill.; Thomas F. Nolan of Albany, N. Y.; A. G. Rose of New Orleans, La.; John J. Shanahan of Norfolk, Va.; Charles M. Swinnerton of Los Angeles, Calif.; Richard G. Thomas of San Antonio, Tex.; Roy E. Thompson of Tacoma, Wash.; John J. Vogelpohl of Cincinnati, Ohio. Visitors were: Edwin D. Hornbrook of Kansas City, Mo.; Frank J. Fee of New York City, chairman of the scholarship committee; Dean Clifford B. Connelley of the Carnegie Institute of Technology; William G. Bergner, secretary of the Plumbing and Heating Industries Bureau; Frank B. Lasette of New York City, past national president; William J. Lang of Chicago, past national director; Albert B. Dibble of New Haven, Conn., chairman of the educational committee; George H. Drake of Buffalo, N. Y., chairman of the standardization committee; William C. Groeniger of Columbus, Ohio, consulting sanitary engineer; Russell G. Creviston, general manager of the Plumbing and Heating Industries Bureau; L. McNamara of St. Louis, past national president.

The scholarship committee of the association, of which Frank J. Fee is chairman, will sponsor a new text book of which William C. Groeniger is author, as

a result of the meeting. The book, which will be published in three volumes, is called, "Plumbing Principles and Practices," and will cover water supply and distribution systems, sewage, waste and drainage systems, and trimmings, fittings and apparatus of plumbing fixtures. This book is expected to be printed and distributed during the present administration. Mr. Groeniger talked to the assembled officers and directors during the meeting, on various topics in which he has specialized.

Russell G. Creviston, general manager of the Plumbing and Heating Industries Bureau, William G. Bergner, secretary of the bureau, and Dean C. B. Connelley of Carnegie Institute of Technology, also talked to the members. Ed. L. Penfrase, secretary of the association, gave his report, which indicated that the membership of the organization was showing an increase, and that interest in its affairs had been stimulated a great deal. Prior to the meeting, Mr. Penfrase had asked the secretaries of the various state associations to send what suggestions they would care to make, and the communications were read and discussed with interest by the directors.

Alfred C. Eynon, treasurer, gave his report, which shows the association to be in good condition financially. He closed his report with advice about the proper methods of keeping the accounts of such an organization. Thomas F. Nolan, director and retiring president, told of the details of the exhibit held during the recent Memphis convention of the association, and gave suggestions which will be of value to future conventions and expositions. ladies of the members.



Seated; the national officers: Alfred C. Eynon, treasurer; John A. Quinn, vice president; Jere Sheehan, Jr., president; Ed. L. Penfrase, secretary. Standing from left to right, the board of directors: John J. Vogelpohl, Richard G. Thomas, Charles M. Swinnerton, James S. Cassedy, A. G. Rose, John J. Shanahan, H. O. Green, William F. Hildeman, Wilbur R. Dosher, Thomas F. Nolan, Roy E. Thompson.

TO HOLD CONVENTION IN SALT LAKE CITY

The regular quarterly convention of the Utah State Association of Sanitary and Heating Engineers will be held December 12 at Salt Lake City, according to the announcement of A. H. Higham, a member of the board of governors of the state organization, at the regular bi-weekly meeting of the Salt Lake City Sanitary and Heating Engineers Association. President Henry H. Bockholt will preside at the convention, at which the questions of greater membership, establishment of a school for apprentices, incorporating of the state association and other current problems will be discussed. In the evening a dinner-dance will be held.

At the meeting of the Salt Lake City Association, the question of the plumbing and heating industries and the dispensers of manufactured gas co-operating for their mutual benefit and that of the public was discussed by a representative of the Utah Gas & Coke Co.

Will Rees, chairman of the board of governors, presided in the absence of both President Ralph D. Evans and Vice President Henry Bockholt, both of whom were sick. Other masters kept away from the meeting were William A. Bywater, past national director, and Parley G. James, past vice president of the Salt Lake organization.

MAKE PLANS FOR THREE-DAY INSTITUTE IN NEW YORK

The committee in charge of the second annual three-day Institute to be held at New York University, New York City, has decided upon January 28, 29 and 30, 1929, as the date. The committee from the New York State Association of Master Plumbers is headed by Stephen H. Welch of New York City, as chairman, and Martin W. Utz of Rochester, as vice chairman. Both are past state presidents. Zone 1 is represented by T. W. Edgerton and William Wolff of Brooklyn, N. P. Donohue and D. J. Whalen of Queens, William H. Kroepke of the Bronx, William H. Ahrens and J. A. Burns of Richmond, J. D. Cooley and J. R. Spellman of Manhattan, V. P. Southard of Suffolk County and William W. Metcalf of Nassau County. Zone 2 members include Andrew H. Karl of Mount Vernon, T. Nolan, North Tarrytown, James Hoyl, Nyack, and Charles Romaine, Newburgh. J. Matthew de Rouville and W. F. Cassidy of Albany and J. E. Harrison of Schenectady represent Zone 3, and Zone 4 has as representatives, R. L. Ehrsam, Utica; C. H. Campbell, Watertown; J. F. Larkin, Rome, and C. J. Nagle of Herkimer. In Zone 5, W. Spicer and A. B. Cavanaugh, Syracuse; Charles Hakes and Alex Auchinachie, Binghamton; B. P. Tuite, Oneida; O. J. Hickey, Auburn; T. Hennessy, Oswego, and H. D. Ellett of Elmira, constitute the membership. The final zone is headed by P. W. Mathews, Niagara Falls; George L. Green, Leroy; Fred F. Nies, Salamanca; William Mauer and Frank W. Stimson, Buffalo, and Fred Snyder and Donald Van Riper of Rochester. New York University is represented by Collins P. Bliss, associate dean, and Professor Walter S. L. Cleverdon.

Plans for the program are proceeding apace, and it is thought that the subjects will be of even more interest to those attending than those that were on the list at the first institute last year.

SIGNET FLOOR DRAINS

It's up to you to call regularly upon the homes and buildings in your community and examine them for faulty plumbing. You'll find many places where a Signet Floor Drain is needed and your customers will thank you for suggesting it after they see the excellent service it renders.

Patented

CRAMPTON-FARLEY BRASS CO.
KANSAS CITY - - - MISSOURI

Tank Fittings of Quality

1856 **"McSHANE"** 1928

The ORIGINAL Compound Lever Ball Cock. Elevated, Low-Down, Top and Bottom Supply Tank Levers and Valves.

Our Catalog is

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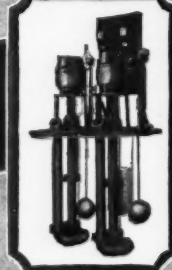
Baltimore, Maryland

WEIL PUMPS *for Better Service*

Weil Duplex Set of Sewage Ejectors

Write for Bulletin S-800

WEIL PUMP CO.
215-7 West Superior Street
Chicago, Illinois
Few agencies still open



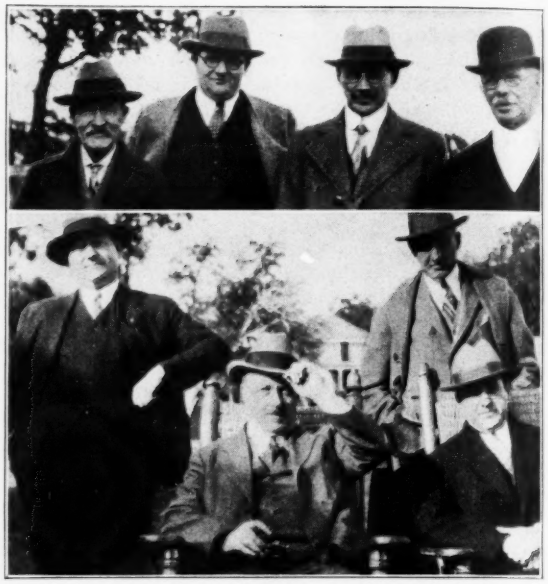
All Lead-Copper-Galvanized Iron

SIMPLEX AND JUNIOR FLASHINGS FOR EVERY ROOF CAN BE HAD IN EACH OF THE ABOVE METALS.

Write for prices and full information on the easily installed, durable SIMPLEX and JUNIOR Flashings.

SIMPLEX MFG. CO.
2644 N. Ashland Avenue
Chicago, Illinois

"Junior Flashings"



Top row: J. Catrella of Providence, A. L. Willis of Ruud Mfg. Co., A. Burtwell of Providence, James Phillips, secretary of Providence Master Plumbers' Association. Bottom row, standing: A. Mistofsky, vice president of Providence, R. I., Master Plumbers' Association; W. Lackhart of Providence Gas Co. Seated: T. J. Tierney, president of Providence Master Plumbers' Association, and S. E. Kinlan of Providence Pipe & Sprinkler Co. Photos taken at the outing of the Providence Master Plumbers' Association

MAKE PLANS FOR WISCONSIN CONVENTION

Preparations are under way for the thirty-fifth annual convention of the Wisconsin Master Plumbers' Association, which will take place at the Pfister Hotel, Milwaukee, January 29, 30 and 31. Some of the speakers have already been invited, and a lively program is planned, according to Lewis R. Friend, president. Among the speakers who will attend are Russell G. Creviston, general manager of the Plumbing and Heating Industries' Bureau; C. W. Wanger of the Woodward-Wanger Co., Philadelphia, and Walter J. Kohler, governor-elect of Wisconsin. These men have all been invited to speak. Mr. Kohler will be a guest of honor at the gathering.

Plans for the entertainment of the delegates are still in process of completion. A dinner-dance on the last night to wind up the convention is planned, and there will be other entertainment also, according to Mr. Friend. There will be a special program of entertainment for the ladies, and this is now being planned by members of the ladies' auxiliary of the local organization.

WHOLESALERS ENTERTAIN DIVISION TWO IN NEW YORK

I. Greenbaum & Sons Co., New York City wholesalers, was host at a dinner held for members of Division No. 2, Manhattan branch, Association of Master Plumbers of the City of New York, and other guests, on Tuesday evening, November 27. The dinner was held at the Building Trades Employers Club, 2 Park avenue, Michael Greenbaum acciation, who responded with a welcome to those present. He extended an invitation to the masters to attend a dinner ing as toastmaster. Mr. Greenbaum called on Thomas J. Dorsey, chairman of the board of governors of the assowhich was to be held at the Concourse Plaza Hotel on December 6

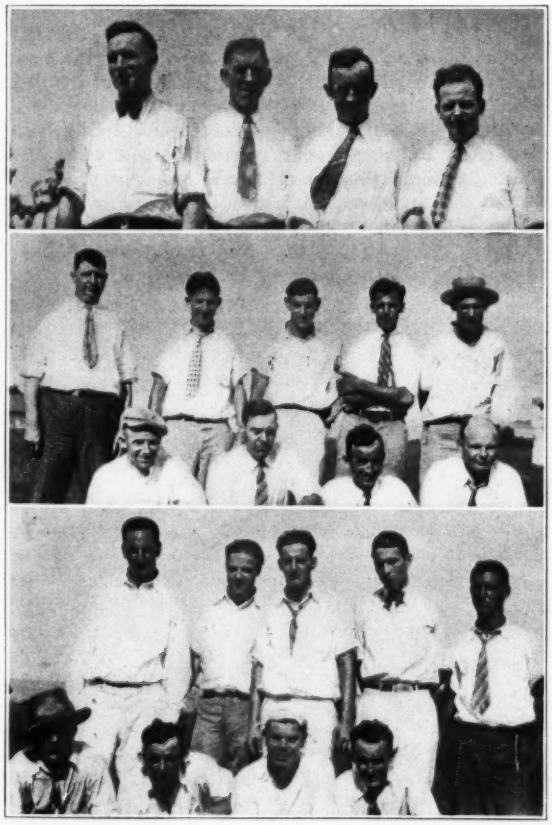
One of the features of the regular business meeting was

the appointment of a nominating committee, made up of T. P. McLoughlin, John Reif, Philip Eich and William O'Keefe, which is to bring in a slate of officers for 1929. Reports from the membership committee showed five new members since the last meeting, and interest was shown in a statement that Alex Brown, veteran executive clerk of the association, is recovering from his illness and is expected to return to his desk soon.

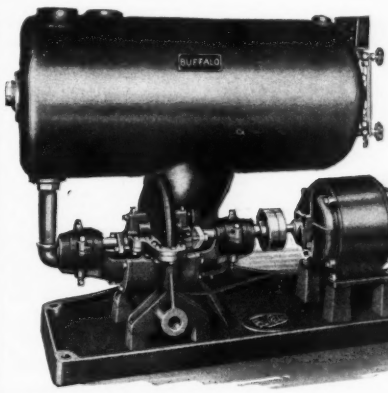
One death, that of Morris Segel, has occurred, it was stated, and suitable resolutions were adopted. Mr. McLoughlin, who is a past chairman of the board of governors, reported on the move toward securing a clubhouse, stating there is much interest being shown, especially among the wholesalers. He hopes to be able to report the purchase of the property in the near future.

Friends of John F. Rogers of Queens, for many years active in Greater New York and state master plumbers' circles, are raising a fund of $5,000 to be presented to him, it was announced. Mr. Rogers, who represented this zone on the state board for years, has recently recovered from a severe illness, and his many friends in the five boroughs are making the presentation as a testimonial of their esteem.

Among the speakers at the general meeting were I. Greenbaum, who spoke at length on his career in business; Samuel Ross, the company's sales manager, who told of the relationship between the wholesaler and the plumbing contractor, stressing the necessity of service from the wholesale house, and Benjamin Simon, who has been connected for the past 15 years with the attorney general's



Top picture. T. M. Rust, A. D. Rapp, U. R. Stell and F. A. Hallam, of the Standard Supply Co. Middle picture: The master plumbers' baseball team, winners of the game. Bottom picture: The salesmen's baseball team, the losers. Photos taken at annual outing of Norfolk association



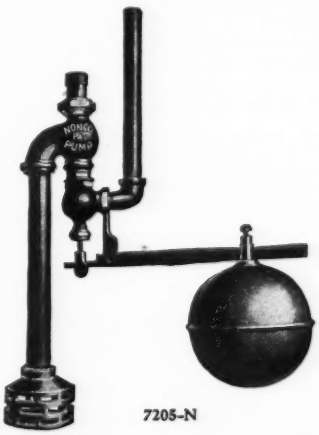
"Buffalo" Pump and Receiver

Handling 212° Condensate

Buffalo Double Suction Pumps and Receivers are made to pump 212 deg. condensate without vaporizing, air binding, reduction in capacity or pressure and various other troubles that prevail in other condensate pumps. Made in several sizes, for all motor speeds with capacities up to 12,500 lbs. of condensate per hour against heads up to 50 lbs.

For further details of this popular priced pump, write for Bulletin No. 960-D which tells the complete story.

BUFFALO STEAM PUMP CO.
483 Broadway, Buffalo, N. Y.
In Canada:
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.



7205-N

A Good Cellar Drainer That Has Been Improved

A new intake strainer is now being furnished with all cellar drainers that will permit a larger quantity of water to enter the jet in addition to preventing floating or solid matter from clogging or entering the strainer, thereby giving greater efficiency.

N. O. NELSON MANUFACTURING CO.
MAIN OFFICE: ST. LOUIS, MISSOURI
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Birmingham, Ala.	Wichita Falls, Tex.	Jackson, Miss.
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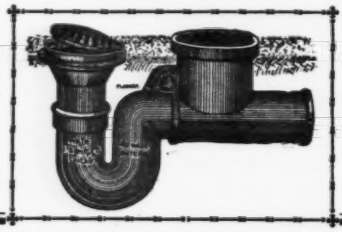
Davenport, Iowa	Houston, Tex.	Pocatello, Idaho
Pueblo, Colo.	Little Rock, Ark.	Salt Lake City, Utah

1872—Pioneer Manufacturers of Plumbing Fixtures—1928

By using manhole clean-out extensions, the Wade Accessible Flushing Clean-Out Extra Heavy Cast Iron Floor Drain Deep Water Seal Trap Combination without backwater gate valve can be installed in ground at any depth and extended upward to any floor level.



WADE IRON SANITARY MFG. CO.

551-553 West Fulton St. Chicago Ill.

AUTOMATIC COAL BURNER

FEEDS COAL TO THE BOILER
REMOVES THE ASHES
REDUCES COAL BILLS
SAFE
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DEALERS WANTED

WRITE TO
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121 Livingston St. :: Brooklyn, N. Y.

E-Z
RADIATOR HANGER
for ALL Tube Type Radiators
The most complete stock on the market—ready for immediate shipment from principal cities. Use this strong, simple, one-bolt hanger. It pays to insist on the E-Z.
HEALY-RUFF CO.
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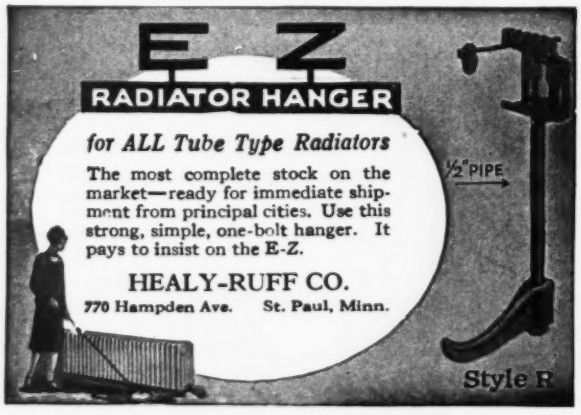


RAYMOND
LEAD ROOF
FLANGES

No caulking is necessary when you use Raymond Lead Roof Flanges. They are easiest to install and will last for the life of the roof without loosening or leaking.

Lead Pipe, Sheet Lead, Lead Traps

DUTCH BOY PRODUCTS
HOYT METAL PRODUCTS
RAYMOND LEAD PRODUCTS

NATIONAL LEAD COMPANY
900 W. Eighteenth Street CHICAGO

office in New York State. Mr. Simon told of the bettering of conditions between the manufacturer, wholesaler and plumbing contractor, stating there are two economic conditions to bear in mind. These are that the supply houses and manufacturers get a reasonable return for their goods and that there be an honest distribution of profits.

Harold Thompson of the New York office, Oster Mfg. Co., lauded the spirit of co-operation among the men in the association, and laid emphasis on the fact that the association means much to the contractor. He closed with a demonstration of products manufactured by the company he represents.

Officers of the association include Mr. Dorsey, John D. Cooley, vice chairman; Thomas J. Cummins, treasurer, and Albert A. Duguid, secretary. The board of governors includes the Messrs. Dorsey, Cooley, Duguid and William J. O'Hare and Nathan Weinsten.

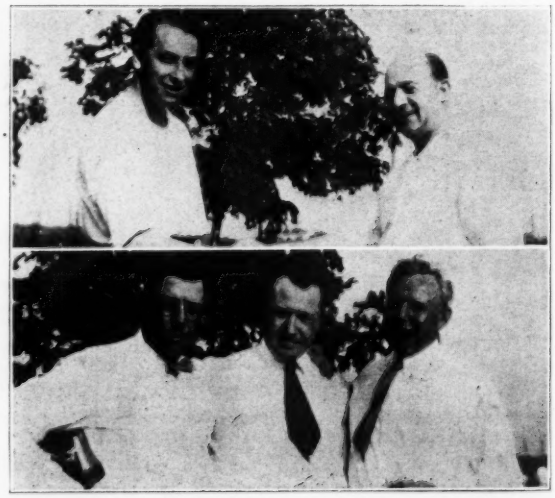
VIRGINIA EDUCATIONAL COMMITTEE WORKS FOR CODES

B. Y. Kinzey, executive secretary of the Virginia Plumbing and Heating Educational Committee, reports that his committee is working for the adoption of plumbing codes in Chesterfield county and Alexandria.

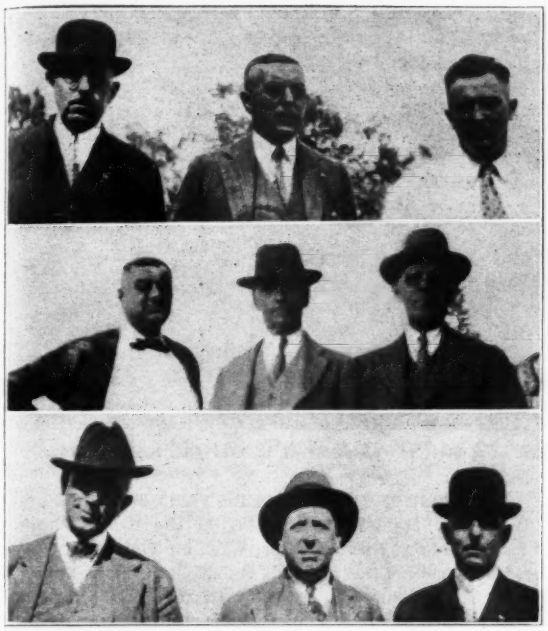
Chesterfield county is the location of the Dupont Rayon development and already has three independent sewer and water systems in unincorporated sections of the county where unsanitary work is being done, while Alexandria, with one of the oldest water and sewer systems in the State, has never had any regulations.

MANHATTAN ASSOCIATION PLANS SOCIAL AFFAIRS

Plans are now under way for three meetings of the Manhattan branch, Association of Master Plumbers of the City of New York. The first will be a stag dinner for members, to be held at the Building Trades Employers Club, 2 Park avenue, on Wednesday evening, December 19. This is to be an old-fashioned beefsteak dinner. Then, on Thursday evening, January 10, an open meeting for both divisions is planned. This also will be held at the Building Trades Employers Club, and it is hoped to have Mayor Walker and Borough President Julius Miller present.



Top picture: Fred Williams, P. A. Dolan Co., Boston; George Anastasia, H. E. Whitten Co., Boston. Bottom picture: David Boyden, Edison Co.; C. E. Mayette, of Dwight P. Robinson Co.; A. A. Gatheman, New England manager of A. M. Byers Co. Photos taken at outing of Heating and Piping Contractors Boston Association



Top row: C. S. Mallard and Vernon J. Voye, both of Baker, Payne & Voye Co., of Milton, A. T. Barstow of Chase Companies. Middle row: J. Preston Perham of Boston, G. H. Wilson of Plumbing and Heating Industries' Bureau, W. Wordell of Taunton. Bottom row: F. W. Newcomb, F. L. Perkins, both of Lynn, and C. S. Mallard of Boston. Photos taken at the outing of the Lynn Master Plumbers' Association

BUREAU SHOWS PROGRESS IN 1928

The year 1928 was a record one for the Plumbing and Heating Industries Bureau, Chicago, according to information just received from that organization. A review of its activities for the past twelve months shows the launching of several new services and the expansion of existing services to the trade.

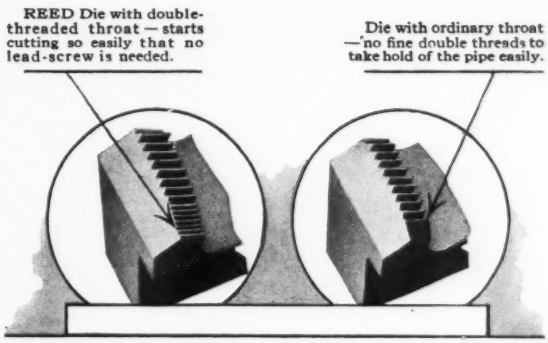
Probably outstanding in this history of the bureau for the year is the national advertising campaign. One of the most significant features of this campaign, it is pointed out, is the stimulus it has given to local newspaper advertising among contractors.

Nearly 600 copies of the Ad Book for master plumbers and the Ad Book for heating contractors have been sold. Contractors in the plumbing and heating industries are making an annual investment of approximately $250,000 in local advertising.

Advertising by local associations has taken on new life with the appearance of the bureau's portfolio of association advertisements. At the present time, 14 local associations are engaged in advertising.

The year 1928 witnesses an expansion in the field service division of the bureau from two to fourteen. The thirteen men and one woman who are now carrying on the field work are stationed at strategic merchandising centers from east to west. The bureau now has permanent field representatives at Tacoma, Wash., San Francisco, Calif., Los Angeles, Calif., Denver, Colo., Atlanta, Ga., Philadelphia, Pa., New York, N. Y., Boston, Mass., and Pittsburgh. In addition, five field workers cover the middle west from the bureau's headquarters in Chicago.

The moving of the organization from Evansville, Ind., to Chicago on October 1 was another forward step. The launching of an intensive study of the market for plumbing and heating equipment in one typical city was another


REED Die with double-threaded throat — starts cutting so easily that no lead-screw is needed.
Die with ordinary throat —no fine double threads to take hold of the pipe easily.

You can see the difference at a glance—

One look at the new REED die, with its patented double-threaded throat, and you understand why it has made threading so much easier.

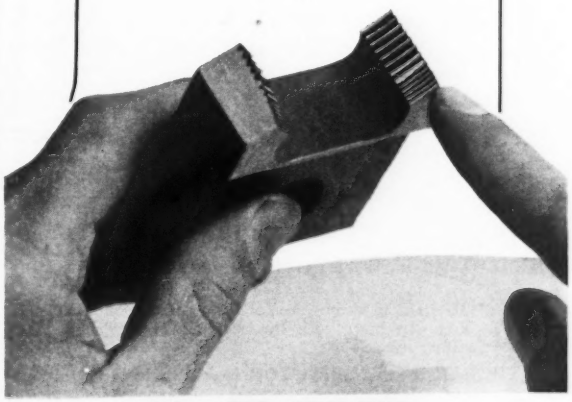
For one thing, the fine *double-threads* on the throat of this REED die take hold of the pipe instantly and easily—burr or no burr— and draw the die right onto the pipe without any pushing effort. They also reduce in a marked degree the power required in completing the thread.

Correct "rake"—or angle—gives a clean *cutting* action—no scraping

The rake causes the new REED die to cut the threads without the least tendency to scrape the metal off. Cuts clean, accurate threads on any kind of pipe— brass, iron, steel.

Drop us a line for our folder describing the new REED dies— and showing how they cut leak-proof threads *when used in any standard stock.*

Reed Manufacturing Company
Erie, Pa.



STOCKS DIES **REED** VISES ETC.

Group of North Shore master plumbers taken on the occasion of a visit to the plant of Kohler Co., Kohler, Wis.

outstanding achievement of the year. For years, leaders in our industries had declared that some time a detailed analysis should be made of the market and of consumer attitudes toward our products. The study of the Philadelphia market under the joint direction of the bureau and the Philadelphia Plumbing and Heating Development League was the result of the feeling among leaders in the industry that a detailed analysis of the market was needed.

Another important event in the bureau's history in 1928 was its leadership in the organization of the Home Modernizing Bureau of the National Building Industries. Already 16 cities have set up a budget of well over $400,000, and approximately a hundred other cities have indicated an interest in local modernizing campaigns.

NORTH SHORE MASTERS VISIT KOHLER

Over fifty master plumbers from the North Shore of Chicago made a trip to Kohler, Wis., on Thursday, November 22 to inspect the plant of the Kohler Co. in that city. The trip was sponsored by the Latimer-Lloyd Co., wholesalers of Evanston, Ill., and the party went on a special car.

On arrival in Kohler, the party started a tour of inspection, which was interrupted by luncheon, served in the American Club. After luncheon, the trip of inspection was continued until completed, and the party repaired to Sheboygan, where dinner was served at the Chamber of Commerce. After dinner, the party returned to its chartered car and started the trip back home.

YOU want more business and increased profits in 1929. You can have both by merchandising Trupar fast selling specialties.

TRUPAR REFRIGERATION is sold exclusively through the trade. It is in great demand and carries a long profit. You are the logical man to sell refrigeration—this is proved by the success of present Trupar Dealers.

TRUPAR PUMPS AND WATER SYSTEMS offer a startling new value. Dealers who know pumps are quick to recognize their quality-built construction, their greater capacity and lower price. A 250 gallon Fresh Water System for $69.50 list.

Trupar "Ready-Brine" WATER SOFTENERS open a new field. While extraordinarily low priced, they are re-conditioned, like a semi-automatic, without constant salt filling. $69.50 list for a "Ready-Brine" Softener of ample capacity.

The new year is near. The time to lay your plans for the next twelve months is here. The time to add Trupar "Performance as Promised" Products is right now. Just send your name and address for "Profits with Proved Products."

TRUPAR MANUFACTURING CO. :: :: 140 DAVIS AVE., DAYTON, OHIO

VITAL SUBJECTS DISCUSSED BY PLUMBING AND HEATING CLUB

What about our industry? How do the jobbers regard it?—and the manufacturers? Which way is the merchant plumber headed, and how fast? All these questions, and a few more, were answered by those best fitted to know, when 150 members of the Plumbing and Heating Club of San Francisco and the bay district gathered for one of their occasional night meetings at the Elks Club of San Francisco on the evening of November 22.

Following dinner, President H. W. Finch, manager of Kohler Co.'s San Francisco branch, opened the meeting with a brief summary of the aims of the club. "Our chief objective," he went on, "is to bring together the manufacturers, the jobbers and the retailers, to the end that a better feeling and a closer spirit of harmony and understanding may pervade the atmosphere of our industry. As I am sure we all see it, there is no better, nor more potent influence in this direction than that exerted by friendly intercourse promoted at the dinner table and on the golf links."

Mr. Finch then turned over the meeting to N. W. Farlow, chairman of the evening, who called upon the first speaker, Francis J. Baker, president of George H. Tay Co. The subject of Mr. Baker's speech was, "The Wholesaler's Ideas Concerning Our Industry." He said, "I believe that the great picture of the needs of our industry clearly shows three outstanding figures: Those of the manufacturer, the wholesaler and the plumbing and heating masters—all producers. These figures should, and to be successful, must, represent a high order of manhood—honest, capable and willing to co-operate. The wholesaler, in a sense, is a producer because he provides a service and helps to produce that which someone else wants and is willing to pay for.

"In short, inasmuch as production, whether of goods or services, is based upon the wants of someone else, the real test as to who is a producer is only a test as to whether one is producing something which someone else wants badly enough to be willing to pay for.

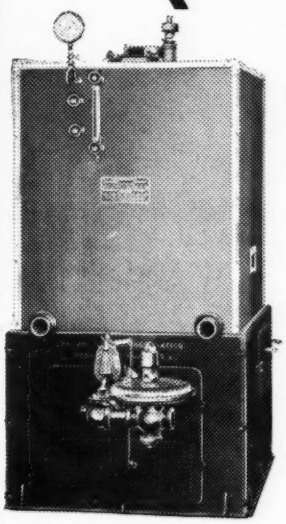
"Most manufacturers prefer to sell to wholesalers and have those wholesalers sell to retailers. This is not because they do not want to take the trouble to sell to the consumers, nor because they do not wish to take the trouble to sell to the retailers. As a rule, it is because either they are unable to build up an organization to perform these functions on a sufficiently large scale to dispose of their products, or because they know that the wholesaler-retailer plan is more efficient than any plan they, themselves, could develop.

"Then again, the retailer makes the wholesaler necessary. The very fact that the average retailer must carry so many items in stock makes it almost impossible for him to buy directly from each manufacturer, even if the manufacturer were willing to sell directly to him. As a matter of efficiency, the retailer must have a source where he may go to buy goods, instead of going to a separate place to buy each article. The time wasted by the small retailer if he bought separately from each manufacturer would throw him into bankruptcy.

"The fact that the retailer buys on credit, at least until he receives and examines the goods, would in itself make buying from each manufacturer a serious handicap in the conduct of his business. When buying from one or several wholesalers, the retailer centralizes his bills. It is thus possible for him to get the type of co-operation that his needs demand and his business justifies. In short, the retailer may scarcely be conceived of as doing business efficiently without contact with the wholesaler.

"The wholesalers and the plumbing and heating con-

Now! Approved by American Gas Association is



Equipped with All Automatic Safety Controls as Required by the American Gas Association

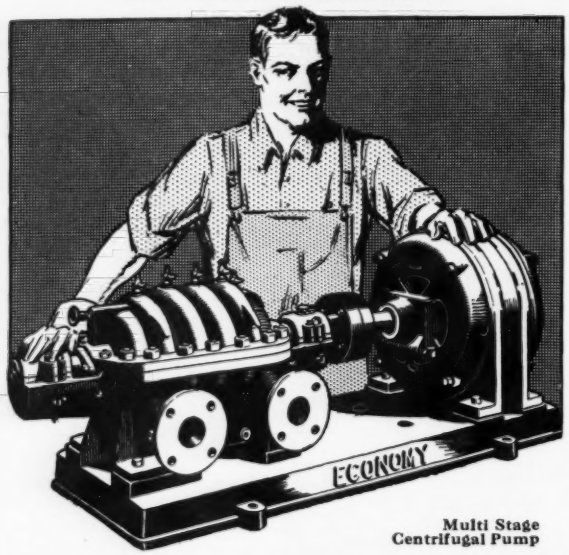
TESTING LABORATORY A.G.A. APPROVED

The American Gas Association, after exhaustive tests, has placed its official stamp of approval on the Bryan Steam Gas Boiler. This information will be of interest to dealers who are interested in selling the most modern and efficient merchandise to their customers.

Bryan Gas Boilers are the most modern, the most efficient, and the most economical gas boiler on the market today. The Bryan plan of dealer co-operation offers an opportunity to alert dealers to cash in on the ever increasing trend toward gas heating. Write us today for full information.

Bryan Steam Corporation
BOILER DIVISION
PERU, INDIANA

Seeing Your Job Through to COMPLETION



Multi Stage Centrifugal Pump

Do you want to turn over your entire pump installation to a single manufacturer?

Or do you merely want to confer with specialists on an unusual pumping problem?

This concern is equipped to do anything in this line you may ask. Economy Pumps hold high records for efficiency, and their makers would be pleased to confer with your engineer at any time. Their recommendations, or whatever useful data is in their files, is at his disposal. We can, if called upon, supply all pumping equipment for an entire building.

Our interest in your job continues even after water is running.

21 years' experience in this field assures you of energetic and intelligent cooperation. Let us sit in with you when you figure, and if possible make suggestions.

Write for bulletin on type that interests you:

Bulletin Nos.

405 Pumps and Receivers
406 Horizontal Split Case Multi Stage Centrifugal Pumps
407 Centrifugal Sump Pumps
408 Single Stage Double Suction
409 Non-Clogging Sewage Pumps
410 Air Line Vacuum Pumps
401 Electric Caisson and Mine Sinking Pumps

ECONOMY PUMPING MACHINERY CO.
3431 West 48th Place, Chicago

Representatives in principal cities—Telephone and address under Economy Pumping Machinery Co.

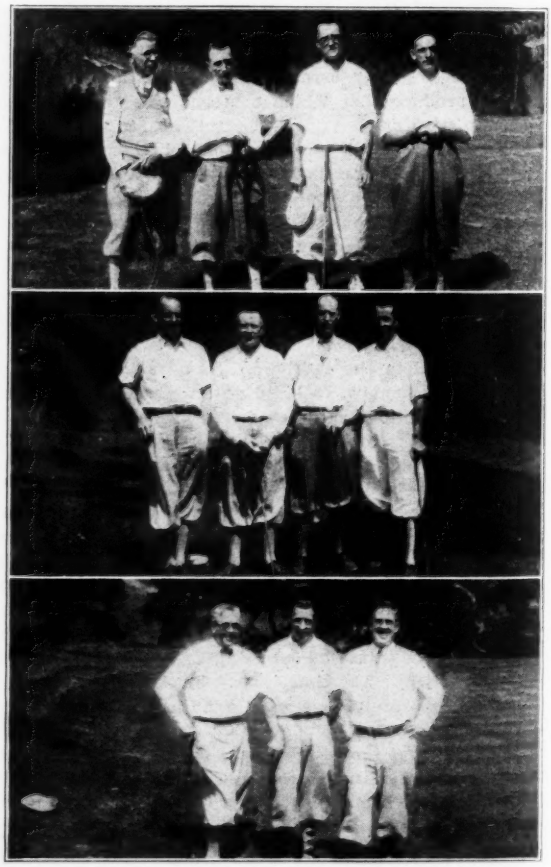
Economy Pumps

tractors can, if they will, co-operate, and together create and find the market for better and larger quantities of the goods required for plumbing and heating jobs.

"The elimination of waste effort in our industry will be possible by closer contacts. The attacks, the ills and the troubles arising in our business can and will be effaced by such a council. For any of the groups to stand apart from each other will lead to difficulties between groups, thereby creating ruinous business practices. The proper corrective measure is immediately to start working together—working together for the advancement and betterment of the plumbing and heating industry. With sincere and proper co-operation, we will have the brains and ability of each group banded together to find proper markets for the goods in which we deal. Without such concerted action we will drift along and gradually become pushed out of our field entirely.

"The plumbing and heating contractors and the jobbers' sales organizations, by working together, should help the manufacturers in their expensive advertising programs.

"Go out with heads erect. Talk, sell, sell and, above all else, sell quality goods. Business is waiting all around us, even though new work is slowing up. The wholesalers should work for and with the masters and, in turn, the masters should work for and with the wholesalers. I appeal to each group and say to you, 'Don't fall back into the ancient and worn-out habit of being apathetic.' Patience and strict attention to business will be necessary to



Top row: J. W. Hottes, Emile Heymans, H. Porter Wilson, J. V. Young. Middle row: D. H. King, J. J. McLeod, C. C. Anderson, Harold L. Pierce. Bottom row: Charles Stewart, Carl McCarthy, Walter Mead. Photos taken at the golf tournament of the Plumbing and Heating Club at Orinda Country Club

win. On the other hand, if we don't care, and take jobs only when and as they come to us, we are going to fade away into the gloom of failure.

"We must fight hard to build up our industry by taking advantage of the field lying ready for us. However, we must find the prospect; but let us say, rather, that we will find it together.

"In concluding, I have to say that the wholesalers of plumbing and heating supplies have their entire interest wrapped up in the present and future of the industry, and as the present year draws to a close, let us cast aside all prejudices and be sure to start the new year with the firm determination to work for nothing but the advancement and the betterment of our industry."

James E. McIlreevy, manager of Crane Co.'s San Francisco branch, was scheduled for an address on "The Manufacturer's Ideas Concerning Our Industry." Mr. McIlreevy begged to be excused from talking, due to his weakened condition as the result of a recent attack of influenza, having virtually risen from a sick-bed to attend the meeting. Mr. Farlow then introduced A. W. Grieve of Beckman, Hollister & Co., business engineers of San Francisco, who has been conducting an examination into the relations and status of the different branches of the plumbing and heating industry, with particular reference to the master plumber. Choosing for his subject "What I Have Learned About the Plumbing and Heating Business During the Past Two Months," he spoke frankly as an outsider and a trained observer, but with the expressed hope that his criticisms and suggestions would be well taken.

"As I see it now," began Mr. Grieve, "there is a figure standing at the fork of a road. On the right is a very narrow but very straight highway, at the end of which lies success. On the left is a broad highway, and, while it is clogged with wrecks—failures—there still remains plenty of room, lots of it, for more of them. This figure is the average merchant plumber. Which way will he turn? First of all, what are the conditions that have caused the broad highway to be covered with wrecks?" The speaker then laid the blame impartially on the manufacturers and the retailers. "The agencies which should function properly are not functioning at full capacity. In other words, some manufacturers have gone directly over the heads of the plumbers to the consumers themselves. A big chain store is today—right now—stocking plumbing materials in all towns of 5,000 and over. What does this mean? It means that the retailer is not succeeding as he should, in the capacity of an outlet for the manufacturer.

"In short, if the manufacturer or the wholesalers cannot sell goods through the regular channels, they will have to go into the retail business. This means either that the plumber will install the goods he sells, or he will only be a purveyor of labor to install goods sold by others. There are hundreds of plumbers today who are becoming mere technicians—mechanics," continued the speaker, pointing to the fact that in Oakland there are now 31 less registered plumbers than there were a year ago, some of whom have gone out of business. "What are you going to do about this condition? Are you going to take the right-hand road at the fork of the highway?" Mr. Grieve summed up his talk by saying, "The plumber will, in self-defense, be obliged to become a merchant plumber not only in name, but in fact."

Rev. J. Whitcomb Brougher, D. D., sparkling satirist, master of anecdote, and noted for his power to hammer home a point, gave one of his most popular talks, "Play Ball!" The doctor is an ardent follower of football and baseball, and during the course of his address he frequently recurred to the parallel existing between modern

SPRINKLER HEADS

C S B C S B

C.S.B. Sprinkler Heads mean lower insurance rates and positive protection for your customers.

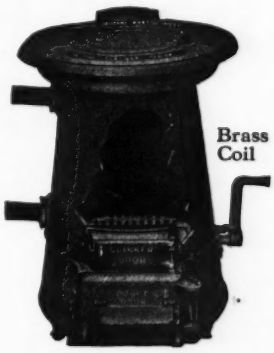
They are rigidly tested before they leave our factory and each of them is stamped with the date they are made and the fusing degree.

Write for full information.

C.S.B. Sprinkler Company

86 Broad St., Boston, Mass.

CLE-BAR



The Brass Coil Heater

Every CLE-BAR Water Heater is equipped with a brass coil. This means not only longer life but a clean water supply. No matter how long water stands in the heating coils it does not become dirty or clouded and the water deposits do not adhere to the sides of the tubing so as to clog it up.

Write us about full CLE-BAR details. They will interest you.

CLEGHORN CO.
86 Broad St., Boston, Mass.

business and sport. In the direction of merchandising, the doctor spoke with telling effect, as he is a keen observer of sales methods.

Plans for increasing the club membership in the East Bay district were reviewed by W. H. Picard, chairman of the committee having that work in hand. These plans, Mr. Picard said, will come to a head on the night of December 13 at the meeting to be held in Oakland, when over two hundred will be in attendance. Although his identity was not disclosed, Mr. Picard promised big things in the nature of a speaker who will talk on "Meeting Competition."

RACINE ASSOCIATION HONORS O. C. DAVIS

The Racine Master Plumbers' Association gave a banquet at the Little Bohemia Cafe, Thusday evening, November 22, in honor of O. C. Davis, who recently retired from the business in that city. There were about sixty master plumbers present from all parts of the state. There were the following from Milwaukee: Lewis R. Friend, state president; Charles Pelunek, state secretary; Emil Henoch, state treasurer; Jacob Schuh, Joseph W. Brah, W. W. Dusold, Walter Tisch, Charles Voelz, David Stern, Walter Dearsley and Peter J. King. Members from Kenosha were Jacob Zimmerman, state vice president; Chris Kaelber, Fred Kaelber, E. Kaelber, L. Walkens, Magnus Jensen, Matt Younggreen and E. J. Sullivan. All the master plumbers and heating contractors in Racine were present.

Louis Schoenleben of Racine acted as toastmaster. Harry Morris, a lifelong member of the Racine local, presented Mr. Davis a beautiful wrist watch in behalf of the Racine local, and Mr. Friend, state president, presented an honorary life membership card made of sterling silver in behalf of the Racine local. William Armstrong, mayor of Racine, talked, and there were also talks from Mr. Schuh, Mr. Brah, Mr. Pelunek, Mr. Sullivan, Mr. Dusold, Mr. Wiertz, Mr. Henoch, Fred Heiss and John Owens. Mr. Davis responded, and talked on association work. A letter was read from Governor-Elect Walter J. Kohler.

ROANOKE, VA., ASSOCIATION TO EMPLOY SECRETARY

The Roanoke (Va.) Master Plumbers' and Heating Contractors' Association has appointed a committee to take immediate action in securing a full-time secretary in place of H. H. Mackenzie, who resigned in July to join the Winston-Salem association.

Obituary

Edward M. Jensen

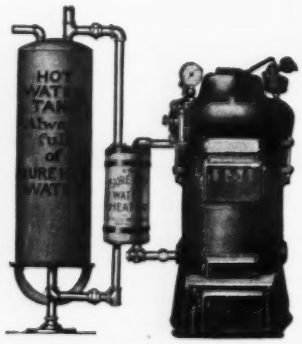
Edward M. Jensen, for many years engaged in the plumbing and heating business in Racine, Wis., died November 13 at his home in Denver, Colo. He was in his fifty-fourth year. Mr. Jensen was a native of Racine. He was educated in that city and after leaving school he entered the employ of Harry Morris, where he learned the plumbers' trade. When his health became impaired, he moved to Denver. Mr. Jensen is survived by his wife and one daughter, Mrs. Frank Navarro, of Denver, as well as three sisters and three brothers.

George Franklin

George Franklin, well known master plumber of Chicago, died in that city on Wednesday, November 21. He was a member of the North and Northwest Master Plumbers' Pleasure Club and the Plumbing Contractors' Association of Chicago. A number of his friends in the trade attended the funeral and burial held on November 23.

It's hard to write an ad for SURE-HOT Heaters

Here's why



It isn't the easiest thing in the world to write an advertisement for SURE-HOT Water Heaters.

They have built up such a remarkable reputation for service, economy and long life that when they are written down on paper they're almost hard to believe.

So let it be sufficient to say that SURE-HOT is what you've always wanted in a water heater not only for your customers but for yourself.

Our Circular on Request

The M. S. Little Mfg. Company

Hartford :: Connecticut

Woman's Page

In a recent address, Lewis R. Friend, of Milwaukee, president of the Wisconsin Master Plumbers' Association, stressed the importance of the women's auxiliaries. The members of these organizations had been very helpful, he said, in arranging for the entertainment of visiting ladies at conventions, and in planning social affairs in connection with the master plumbers. A leader in one of the auxiliaries wrote a short time ago that the friendships formed among the women at the auxiliary meetings had proved an important factor in their enjoyment of the conventions. These instances illustrate one of the most important phases of the work of the women's auxiliaries.

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Denver Auxiliary Elects Officers

A delightful party was recently given by the Ladies' Auxiliary to the Master Plumbers' Association of Denver, Colo., at the home of Mr. and Mrs. Vincent Kandorf, 570 Gilpin street. The rooms were decorated in Hallowe'en colors, and whist was played until midnight. Refreshments consisting of sandwiches, doughnuts, coffee, pickles, fruit, pumpkin pie and candy were then served. Another interesting affair was a luncheon at the home of Mrs. V. A. Kiser. The table was attractively decorated in orange and black. After the luncheon a business meeting was held, and new officers were elected for the coming year as follows: Mrs. G. A. Stocking, president; Mrs. V. A. Kiser, vice president; Mrs. F. X. Bordeau, secretary; Mrs. R. A. Hurley, corresponding secretary; Mrs. E. B. Clayton, treasurer; Mrs. Frank Hanlin, sergeant-at-arms. An afternoon at whist was enjoyed after the business meeting.

Roanoke Auxiliary Holds Party

The Emily Virginia Hornbrook Women's Auxiliary to the Master Plumbers' Association of Roanoke, Va., gave a Hallowe'en party at the home of Mr. and Mrs. W. H. Trent, in that city. Games and contests were the order of the evening, following which delightful refreshments were served. The cake contest was won by Mr. and Mrs. G. E. Schrader.

Activities of "Wampa Club"

The "Wampa Club," of which there are twelve members, is another name for the Women's Auxiliary to the Waterbury, Conn., Master Plumbers' Association. This organization meets twice a month, one meeting being devoted to business and the other a social affair. A card party is usually held on the latter occasion and refreshments are served by the auxiliary members. The members of the "Wampa Club" pay twenty-five cents a month as dues. At the convention, which was held in May by the Master Plumbers' Association, the auxiliary acted as hostess to the visiting ladies.

Portland Women's Auxiliary Entertains

A most enjoyable occasion was the party given by the Women's Auxiliary to the Master Plumbers' Association, Portland, Ore., on the evening of November 10. The affair was held at the home of Mr. and Mrs. W. T. Finnigan, 316 East Twenty-ninth street, in the evening. Due to illness among some of the members and the enforced absence from the city of others, the attendance was reduced somewhat from the usual number, but about twenty-five gathered for the festivities.

Cards were the diversion of the evening, both bridge and five hundred being included. Mrs. Ed. Murphy, Mrs. B. D. Coffey and C. C. McCoy carried off the honors.

The hostess, assisted by Mrs. Beard, served delicious refreshments at the close of the evening, and now everyone is hoping it won't be long before another such affair.

Mrs. Kuetemeyer Returns from Trip Abroad

Mrs. F. C. Kuetemeyer, wife of F. C. Kuetemeyer of Milwaukee, past president of the Wisconsin Master Plumbers' Association, has returned from a five months' trip abroad. Mrs. Kuetemeyer, who is prominent in activities of the Ladies' Auxiliary of the Milwaukee Master Plumbers' Association, was met in New York by her husband.

Dinner-Dance Given by Auxiliary of Oranges

A dinner-dance was given by the Women's Auxiliary of the Master Plumbers Association of the Oranges, N. J., at Walnut Hall, East Orange, on Thursday evening, November 15, a five-course dinner being served to the 160 guests. Dancing followed the dinner, punch being served to the members during the dance. A feature of the dinner was the singing of Mrs. Charles Kunz of West Orange, who gave several selections.

Prizes were given for various dances during the evening,

Top row: Miss Margaret McNamara and Mrs. L. McNamara; Miss Mildred Gilmore. Bottom row: William McCue, Mrs. C. H. Obert, Mrs. John J. McCue, Mrs. J. M. Ward and Miss Helen McCue. Photos taken at annual outing of St. Louis association

Minutes Mean Money

Your ability to save a few minutes every hour means just so much more money in your pocket. It is the time saved on each contract that results in a profit.

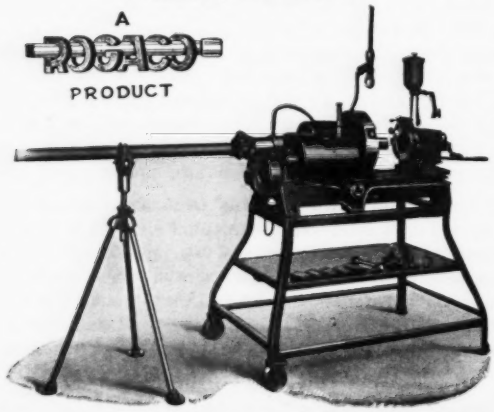
The Rogaco Portable Electric Pipe Machine is, first of all, a time saver, so it naturally follows that it is a money maker.

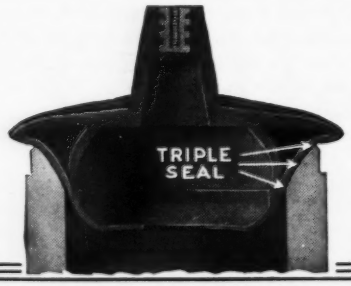
Order one today through your jobber and make more money on your contracts.

Manufactured by

ROBBINS, GAMWELL & COMPANY

Pittsfield, Massachusetts





The Float that Stops the Leak

TRIPLE SEAL FLOAT

Here is a new design, a new principle, in tank balls, the Triple Seal Float. Made of purest rubber, it expands as the result of the water pressure in the tank.

The remarkable flexibility of the Triple Seal Float positively assures the stopping of any leakage due to scale, slime or sediment forming on the seat.

Exhaustive tests, made under all conditions likely to be encountered in service, have failed to turn up a single fault in the Triple Seal Float construction.

Order it from your jobber or write us direct.

Golden State Rubber Mills

1920 E. Vernon Avenue Los Angeles, Calif.

the winners being Mr. and Mrs. C. H. Kolb, John Gossler, Mrs. A. Trapper, Jr., Mrs. George H. Brenner, Mrs. Fred W. Hoffman, A. M. McChesney, George Disbrow, Jr., and William S. McKinney, of W. V. Egbert & Co. Guests present included Past National President and Mrs. Selden Walker, Andrew Taaffe, president of the Newark Association, and State Treasurer and Mrs. George Werner of Orange.

The reception committee was made up of the Mesdames Charles Kunz, George Fricke, A. Trapper, Jr., William J. Wheatley, George H. Brenner and G. Krause. Officers of the auxiliary are Mrs. Joseph Berg, president; Mrs. Fred W. Hoffman, vice president; Miss Hilda Koeck, secretary; Miss Bertha Koeck, treasurer, and Mrs. Charles Kunz, sergeant at arms.

North Shore Auxiliary to Hold Christmas Party

The Women's Auxiliary to the North Shore Sanitary Engineers Association met on Friday evening, November 16, at the home of Mrs. J. M. Krejci, 2809 Central street, Evanston, Ill. Owing to the inclemency of the weather, there were only eleven members present, with Miss Esther Schmeisser, the president, in the chair.

The usual routine business was disposed of and cards and bunco were played following the adjournment. In bunco, honors were awarded to Mrs. George A. Kearney and Mrs. Conrad Schmeisser, and in cards to Mrs. George Swift and Mrs. S. J. Steffens. Delicious cake and coffee were served after the cards and bunco games.

The next meeting will consist of the usual Christmas party. Each member brings an inexpensive gift and all are placed in a basket. They are then drawn out and much merriment lends a real Christmas spirit to the occasion.

MANHATTAN MASTERS PLAN BEEFSTEAK DINNER

A beefsteak dinner has been planned by the Manhattan branch, Association of Master Plumbers of the City of New York, this to be held at the Building Trades Employers Club, 2 Park avenue, on December 19. Joseph H. Spellman is chairman of the committee in charge, and is assisted by Richard Anderson, treasurer, Andrew Green, Henry Berg, Paul Bernstein, Manny Kalisch, Nathan Weinstein, John J. Halloran and Malcolm Walsh.

CHIEF PLUMBING INSPECTOR TO ADDRESS SAN FRANCISCO PLUMBERS

Master plumbers of San Francisco and San Mateo County will hear Wm. D. Hobro, chief plumbing inspector of the San Francisco Board of Health, at Master Plumbers Hall, 110 Page street, on the evening of January 7th.

Always having a live subject at his command and one of vital interest to the industry, Mr. Hobro will come before the masters of his city and the adjoining county with a talk that is bound to hold the interest. He will speak on "Some New Phases of the Ordinance and Inspection Situation." It is expected, also, that some attention will be given to the subject of a state plumbing code.

JERSEY CITY MASTERS ENTERTAINED BY ESSEX FOUNDRY

Thirty master plumbers, members of the Jersey City Master Plumbers' Association, were the guests of the Essex Foundry, Newark, N. J., on Wednesday, November 21. The masters left Jersey City on a specially chartered bus, making the trip to the plant speedily and comfortably, and were then taken through the plant from beginning to end, the trip taking approximately two hours. A buffet luncheon was then served, then motion pictures of some of the company's foundries in Alabama

were shown, these being amplified by pictures of soil pipe being installed in a large building.

Following this, the guests were taken to the Elks Club, in Newark, where they partook of an excellent dinner, later returning to Jersey City via bus. The Essex Foundry was represented by Henry Hoeltge, advertising manager, W. N. McVickar, sales manager, and Mr. Crotty of the sales force. The plumbers' delegation was headed by President Henry Cohendet and Secretary James A. Brennan.

EXHIBIT AT HOME PROGRESS EXPOSITION

The Master Plumbers Association of New Britain, Conn., recently prepared a booth for the Home Progress Exhibition, held in the Stanley Arena in that city. As shown by the photograph, great care was used in the planning, high

Booth of Master Plumbers' Association of New Britain, Conn., at the Home Progress Exposition in that city

grade fixtures being shown. One $650 lavatory was included, and the display had, in addition, electric sinks, wash trays, gas water heaters and other specialties. On the sign which carried the name of the association, the names of 28 individual members were shown.

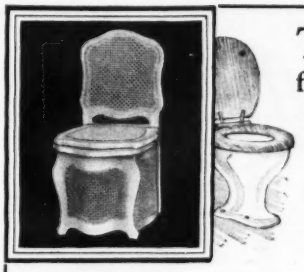
HOME MODERNIZING SPEAKER ADDRESSES OAKLAND BUREAU

New developments in the field of home modernizing and how members of the local bureaus, scattered throughout the country, are going about it to secure this highly profitable and practically non-competitive business, were subjects to which the members of the Oakland chapter of the National Home Modernizing Bureau listened with interest on the evening of November 16. H. K. Nygaard, from the home office of the national body, addressed the meeting. The progress of the Oakland bureau has been most encouraging. There are 40 members. J. A. Neighbor is actively in charge of operations, maintaining an office at 363 Hobart street.

BALTIMORE MASTERS INSPECT JOHN WOOD MFG. CO. PLANT

On November 14 a large delegation of the Master Plumbers Association of the state of Maryland made a visit and a tour of inspection of the plant of the John Wood Mfg. Co., Conshohocken, Pa. They were accompanied by Harry Abrams, Baltimore representative of the company. Leaving Pennsylvania Station in Baltimore at 8:23 a. m., on a Pullman specially chartered for the occasion, the delegation arrived at Norristown, Pa., at 11:30. After a tour of the city, they partook of a chicken and waffle dinner at the historic Valley Forge Hotel.

The next stop was at the plant of the John Wood Mfg. Co. in Conshohocken, where the entire works were inspected



Take a Tip from the Automobile

What Sells It — The Engine or the Body?

Fashion's hand is playing a part in the bathroom today—demanding that the "Ugly Duckling" toilet bowl be concealed.

The ZUNDEL Sanitary Toilet Chair matches perfectly any color schemes and designs. Brings you business from old completed installations as well as new jobs. Any type of bowl can be fitted in a few minutes. Does not duplicate anything in your stock.

Ask your jobber or write us for catalog D-5.

KILLZUN, INC.
Tribune Tower, Chicago

Zundel SANITARY TOILET CHAIR

When you Recommend a Kaustine septic tank . . .

. . . . . not only is the good name of Kaustine behind every Kaustine Septic Tank— but likewise the highly respected name of Armco Ingot Iron. Every Kaustine Septic Tank bears the Armco Trade Mark. You do not gamble with your reputation when you recommend and install Kaustine Septic Tanks, for they are not only backed by these two nationally known organizations, but they are sold only through the plumbing jobbers.

KAUSTINE COMPANY, INC.
Perry New York

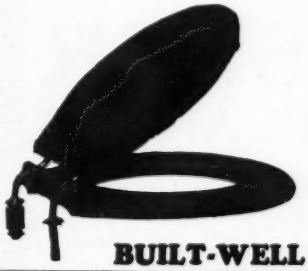
Make the Change Now

Don't delay trying Bullard Roof Flashings for easy and permanent installation.

Make the change, now, and know that your jobs in the future will be right.

Order Them From Your Jobber.

THE BULLARD SPECIALTY CO., *Tiffin, Ohio*



The Built-Well Toilet Seat is not only built well in the finer parts but its finish is a studied application which will last as long as the seat itself.

BUILT-WELL MFG. COMPANY

The Built-Well V-Lock Joint
Sectional view of joint, turned upside down to show how dowels are inserted from bottom. Moisture only makes them tighter.
Patented

300 N. Robey St.
Chicago,
Illinois

THE
"Air-Out"
Syphon Thermostatic
Air Valve

A Large Float

Heavy Cast Brass Base

Free sample valve for testing for the asking

All metal, non-adjustable

Cross Section

The Last Word~ In Syphon Air Valves

Guaranteed Five Years

NEW YORK AIR VALVE CORP.
478 Broome St. • 66 Wooster St.
New York, N. Y.

HESSLER
ROOF FLANGES

The reason so many contractors are using Hessler Roof Flanges is because they have learned through experience that these flanges save their time and do a better job. A hammer is all that is needed to install them.

H. E. HESSLER COMPANY
Syracuse, New York

Top row: Mrs. F. H. Ritterhoff, Mrs. and Mr. J. T. Roberts of J. T. Roberts & Bro.; Mrs. Allen W. Benm, Mrs. L. B. Martin. Middle row: Mrs. Chester Weaver, Mrs. Thomas Thaler, E. F. Ritterhoff, P. H. Matey, J. F. Warnken, both of Jas. Robertson Mfg. Co. Bottom pictures, standing: Mrs. and Mr. George Pflest, Mr. and Mrs. C. Neiser, Hajoca Corp.; Ferd Eidman, Sloan Valve Co.; Henry C. Gunther. Seated: John Snyder, Kohler Co., Philadelphia; Sidney Mayer, Burnham Boiler Corp.; George Schubert. Photos taken at the outing of the Maryland Master Plumbers' Association

and every step in the manufacturing processes described and demonstrated. The welding shop held the prolonged interest of the men, and every phase of this work was explained.

M. H. Feldman, general sales manager of the company, addressed the visitors at the plant, and outlined the sales methods of the company. The various articles that the company manufactures were described by Mr. Feldman, and suggestions for the increase of their sale were made.

BUYS FIVE-STORY BUILDING

R. A. La Centra, well known Boston master plumber and heating contractor, has purchased the building at 55-57 Washington street North in that city, in which his business has been located. The building has five stories and basement, and the ground alone was assessed at $25,000 last year. Mr. La Centra is president of the Boston Master Plumbers Association and a member of the Heating and Piping Contractors Boston Association.

RHODE ISLAND MASTERS ENTERTAIN AT DINNER

The Rhode Island State Association of Master Plumbers held a beefsteak dinner at Smith's Inn on Thursday evening, November 15, at which the wholesalers and journeymen plumbers of the state were also in attendance. C. W. Wanger, president of the Woodward-Wanger Co., Philadelphia, was the speaker of the evening. John M. Drysdale, J. F. Williams and A. A. Mistofsky were members of the committee.

AND WEEKS AND WEEKS

In days of old when knights were bold,
They scorned typhoid, and drank from creeks.
I'm told they never bathed or shaved
For weeks, and weeks, and weeks.

NORFOLK BULLETIN.

PERFECT ALIBI

Judge: "You were doing 60 miles an hour."
Prisoner: "I had good reason, your honor. The cop was chasing me and I had a stolen car."
Judge: "Oh; case dismissed."

P. G. N., Chicago.

STICK TO YOUR LAST, FIRST

One day I watched a plumber fix
A leaky bathtub slick and clean;
"There's nothing to these plumbers' tricks,"
The thought exploded in my bean,
"I'll do my own of work like that
And with the savings buy a hat."

Eventually it fell my lot
To own a tub that leaked like sin,
The more I toiled the worse it got,
Until at last my soul gave in.
I called a plumber in my shame,
He quickly fixed it up again.

'Tis always thus when humans try
To do the things they don't know how—
To fly a plane around the sky
When all they've ridden is a cow.
"Stick to your last" is always best,
And let the tailor make your vest.

NIBCO NEWS.

"SY" SEZ

Patient: "How much longer will I live, doctor?"
Doctor: "Well, I wouldn't advise you to start reading any serial stories in the magazines."

SALESMANSHIP

S-elling's not just talking
A-nd getting folks to buy;
L-eading them to want something,
E-xplaining how and why.
S-alesmanship is more than that,
M-ore work and more fun, too;
A-dvancing modern methods—
N-ew ways, but tried and true.
S-ervice given willingly,
H-ard work, a cheerful grin—
I-t's making friends, for that is what
P-uts you in line to win!

A bridegroom sometimes meets the bride with a brass band.

"SY" MARTIN, Owensboro, Ky.

Dumb—If I saw a man beating a donkey with a club and stopped him, what virtue do I show?
Bell—Brotherly love.

She—Even if you don't love me, there are several things I can still count on.
He—Yeh; you still have your fingers.

L. N. O'F., Los Angeles.

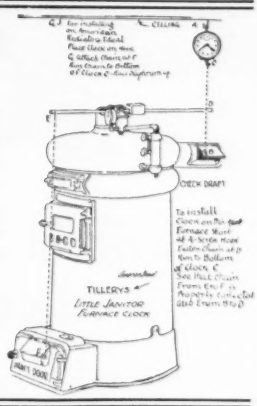
Thanksgiving indigestion rarely is remembered at Christmas.

L Y T.

The LITTLE JANITOR CLOCK

The Little Janitor Clock makes any heating system automatic. It is easy to install as there are no complicated adjustments to make nor difficult diagrams to follow.

Write us for complete information



Tillery's Little Janitor Clock Co.
55 Orchard St. Newark, N. J.

The contractor receives a written guarantee on the heating capacity of every Capitol boiler

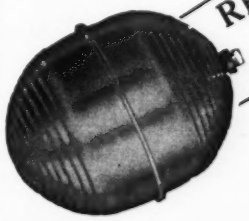
Guaranteed Heating WITH
Capitol Boilers
AND RADIATORS

United States Radiator Corporation · Detroit, Michigan
6 Factories and 32 Assembling Plants Serve the Country
For 37 years, builders of dependable heating equipment

There are no soldered seams in the Reichert Toledo Float —nothing to pull loose or wear.

REICHERT SOLDERLESS FLOATS

Our Catalog in



Only the best brass copper is used in their manufacture. Order "Toledo" Floats from your jobber

Reichert Float & Mfg. Co.
2238 Smead Ave. Toledo, Ohio

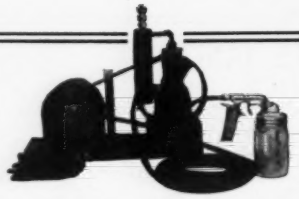
SIMPLIFIED VAPOR HEAT

You don't need highly technical knowledge to install this thoroughly satisfactory Vapor System. Write for all particulars, low prices and trade discounts.

Hutchison Regulator Sales Corporation
43-06 36th St. Long Island City, New York

Our Catalog in

HUTCHISON SYSTEM



Utility Paint Spray Equipment

$49.50

Weighs but 39 pounds. Can be attached to the nearest light socket. A few hours painting will pay for it. Employs all the principles of higher-priced outfits, including a real compressor . . . not a low pressure blower; ¼ horsepower motor; suction feed spray gun; 15 ft. hose; 10 ft. electric extension cord.

Write for illustrated literature.

KELLOGG MFG. CO.
121 Humboldt St. ROCHESTER, N. Y.

KELLOGG COMPRESSORS

HUNDREDS of dollars in oil burner profits are available to you if you have the right kind of equipment to offer.

And now getting the right kind of product is a simple matter. Rexoil Burners will put you in where you can get the profits. And they'll give customers satisfaction too. Listed as standard by the Underwriters' Laboratories, Inc.

Write for details.

REIF-REXOIL, INC
BUFFALO N.Y.

Bath a Day Movement

With the coming of the winter months, and the activities of associations, alert secretaries are going to be looking for live issues with which to keep the members interested and meetings worth attending. We suggest the formation of a "Bath a Day Campaign" Committee, to foster the idea of daily bathing. In the 169 cities and towns where "The Story of the Bath" has been used as supplementary reading, the idea has found favor and has won fine publicity for the master plumbers of those communities.

169

To any association setting up such a committee, we offer our assistance. We will give full information concerning the Bath a Day idea, how to launch a campaign, and how to cash in on it with the local newspapers.

Write for a copy of "The Story of the Bath" and read it. Then take the matter up at your next association meeting, get your plans rolling and write us for help for your committee. We'll be glad to co-operate.

Epigrams—For Your Use

The average man prides himself on the possessions his neighbors can't afford.

* * *

It's unnecessary to tell a boy to practice economy in the use of soap.

* * *

Don't send for a physician if you are love-sick.

* * *

People who live in glass houses should have them frosted.

* * *

Don't sit down and wait for a job to come along and hunt you up.

* * *

A girl always thinks a man's heart is in the right place when she has it.

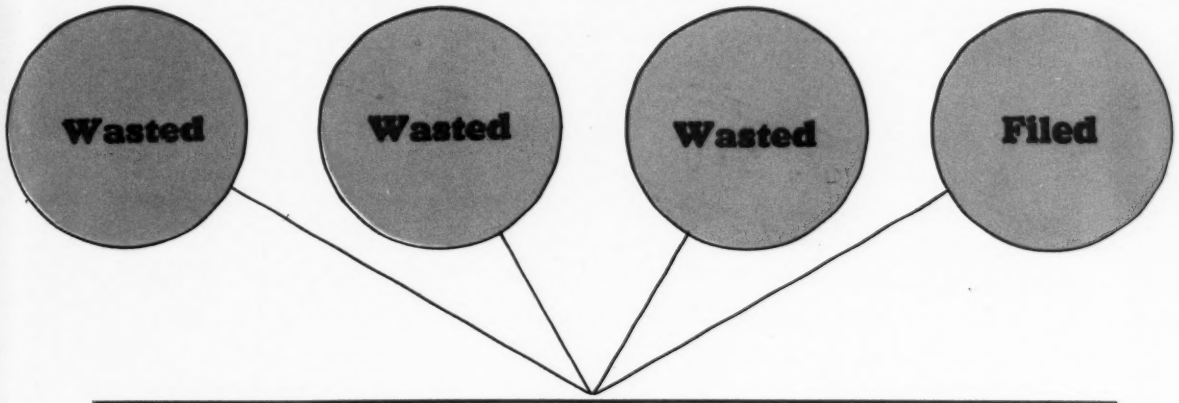
USE OF FUEL OIL SHOWS LARGE INCREASE

More than a billion gallons of fuel oil were used to heat residences and other buildings in the United States during 1927, according to the national survey just finished by the United States Bureau of Mines in co-operation with the American Petroleum Institute. This amount, the Oil Heating Institute estimates, was sufficient to supply at least three-quarters of a million homes and commercial structures.

The Bureau of Mines report shows that the use of oil for heating purposes has increased during the past few years faster than that of any other fuel. The increase during 1927 amounted to nearly 5,000,000 barrels, the figures being 27,500,000 barrels for 1927, as compared with 22,780,000 barrels during 1926. In addition to this total of fuel oil used purely for heating purposes, the Oil Heating Institute estimates that about 10,000,000 barrels more was used in stationary burners, including boilers raising steam for power purposes, and plants for heat-treatment of materials in industrial processes.

The Bureau of Mines reports that, of the oil used during 1927 for heating buildings, 12,377,000 barrels were consumed in the heating of residences and 15,143,000 barrels in the heating of commercial structures. Fuel oil consumption for domestic heating alone has increased between 400 and 500 per cent during the past five years, consumption during 1923 being 2,818,000 barrels.

How to Eliminate Waste in Catalog Distribution



A recent survey shows that 3 out of 4 Catalogs and Circulars distributed by the average manufacturer of Plumbing and Heating Supplies are immediately discarded and aside from momentary attention value can be considered waste distribution.

How Above Percentages were Compiled

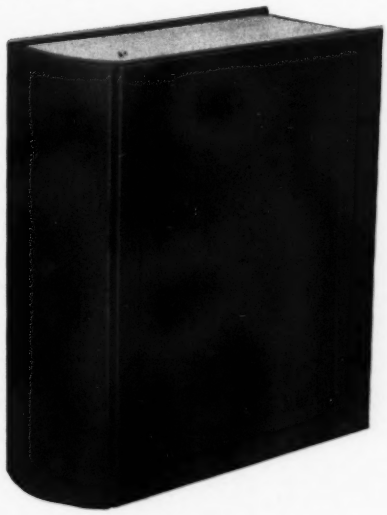
In a recent survey made by Domestic Engineering Company among the Wholesalers of Plumbing and Heating Supplies, all over the United States, the question of what happened to individual catalog and circular material was asked. It was discovered that an average of 75% of all the individual catalogs and circulars sent to the wholesalers by manufacturers is discarded immediately upon receipt.

Reasonableness of Percentages

This same survey showed that many wholesalers receive from 25 to several hundred individual catalogs and circulars through the mails in one week's time. It is readily seen how impossible it would be for a wholesaler to keep all this material in file. To do so, would necessitate having an extremely large filing space and would require all the time of one person to keep the material in shape so it would be of any use. It, therefore, seems most reasonable that at least 75% of this matter is immediately discarded.

What This Means to the Manufacturer

This means, when the average manufacturer puts out his catalog that as soon as it is off the presses and sent through the mails it runs the risk that only 25% of the total distribution is going to be useful. If this is true, it means that the net cost of the unit catalog is going to be materially increased. For example, if a manufacturer has 4000 catalogs printed at a cost of about 25 cents each, and only 1000 are used, this would make the net cost of each usable catalog $1.00. In many cases where expensive catalogs are produced the dollar and cents waste would be a great deal more than stated above.



Is the 25% Distribution Efficient?

The question now arises whether or not the catalogs that are kept in file work efficiently. A certain percentage of them will be misfiled, misplaced or lost in some way. Many of them will not be available when wanted. And it is practically impossible for a wholesaler to keep a complete index so he will know when to refer to some particular catalog. Therefore, while according to the survey 25% of the catalog distribution is put to use, this 25% is seen from this to be far from being 100% efficient. In fact, it is so decreased that the actual value of a total catalog mailing may amount to only about 10% as far as effectiveness is concerned.

What is the Remedy?

Manufacturers of Plumbing and Heating Products distributed through wholesalers are thus brought face to face with the fact that there is a tremendous waste of catalogs that should be eliminated.

The important thing then is to find a method by which a manufacturer's catalog can be kept constantly before the attention of the buyer, always up to date, carefully indexed to save a busy buyer's time, 100% efficient and economical in cost.

The answer is **"Domestic Engineering Catalog Directory,"** a Catalog of Plumbing and Heating Products built to the wholesaler's own specifications. A Catalog that is on the desks of practically every wholesaler of plumbing and heating supplies in the United States. A Catalog that is always ready to give the buyer information about any product manufactured in the Plumbing and Heating fields. A Catalog that is indexed and cross-indexed to make references simple and easy. A Catalog that is economical in cost and one that entirely eliminates the element of waste, assuring a manufacturer 100% catalog distribution and efficiency.

There are many more valuable facts regarding the advantages manufacturers gain by placing their catalogs in **Domestic Engineering Catalog Directory.** We will gladly furnish complete information on request.

DOMESTIC ENGINEERING COMPANY

1900 Prairie Avenue Chicago, Illinois

ABOVE-BOARD

DOMESTIC ENGINEERING, along with other progressive publications belonging to the Audit Bureau of Circulations, has adopted an open and "Above-Board" circulation policy. We lay before advertisers circulation facts that have been verified by experienced auditors.

Advertisers, before the advent of the A. B. C., were forced to depend upon hearsay circulation information and unverified "sworn statements" of circulation. No detailed figures were available and no verification was possible except at great expense to the advertiser.

Nowadays, advertisers look at the A. B. C. for dependable, unbiased circulation information. Today 91% of the circulation of papers having over five thousand circulation is audited by the A. B. C.

The A. B. C. makes it possible for every advertiser to have detailed circulation facts, which will permit a fair comparison and eliminate guesswork from the purchase of space.

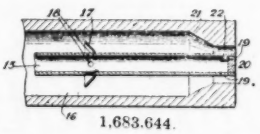
[DOMESTIC ENGINEERING *is a member of the* A. B. C.]

DOMESTIC ENGINEERING 1900 Prairie Avenue **CHICAGO**

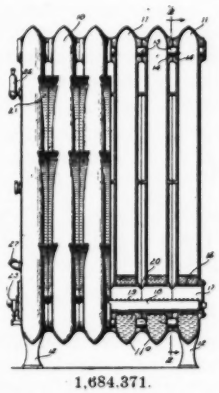
Plumbing and Heating Patents

Heating Department

1,683,644. Oil-Burning Heater. Oliver E. C. Woods, Toronto, Ontario, Canada. A mixing nozzle for an oil burning heater, comprising an outer air-conducting pipe and an inner fuel-conducting pipe arranged within said air-conducting pipe, said air-conducting pipe at its discharge end provided with a restricted, substantially cylindrical discharge orifice, and said fuel-conducting pipe terminating within said restricted orifice and having a radial outlet opening to discharge fuel into said restricted orifice in a plane substantially perpendicular to the flow of the concentrated blast of air through said restricted orifice, said fuel-conducting pipe having a plurality of lateral openings establishing communication between the interior portion of the fuel-conducting pipe and the unrestricted interior portion of the air-conducting pipe, and means about the fuel-conducting pipe adjacent the lateral openings therein for intercepting a portion of the current of air passing through the unrestricted interior of said air-conducting pipe and concentrating such intercepted air for injection through the last mentioned openings into said fuel-conducting pipe for mixing with the fuel therein and accelerating its flow therethrough in the direction of the radial outlet openings.



1,683.644.

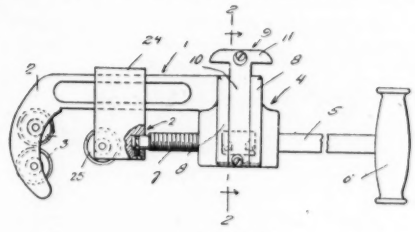


1,684.371.

1,684,371. Gas-Heated Steam Radiator. James Francis Firth, New York, N. Y. A gas heated steam radiator comprising a plurality of spaced and connected sections adapted to contain water in their lower portions, a transversely extending burner chamber in the lower part of the radiator and so located therein that it will be surrounded by water, a gas burner in the chamber, said chamber having openings in the top between the radiator sections for the passage of the products of combustion, and baffles extending upwardly and forwardly from the chamber adjacent the openings therein between the radiator sections for directing the products of combustion passing through said openings.

* * *

1,683,912. Pipe Cutter. Charlie Cary Neblett, Norfolk, Va. In a tool of the class described, a shank having a jaw at one end provided with cutting means and having a head at its opposite end, said head being formed with a passage disposed in parallelism with said shank, a handle passing through said passage, a slide mounted on said shank, a cutter carried by said slide and co-operative with the first named cutting means, said handle being swivelly connected with said slide, a frame slidably mounted upon said head, a pair of complemental relatively movable grips associated with the head and passage and engageable with said shank, and an operating connection between the

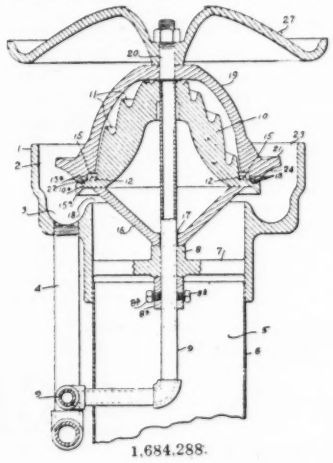


1.683.912.

frame and the grips, whereby to release the grips to facilitate adjustment of said slides.

* * *

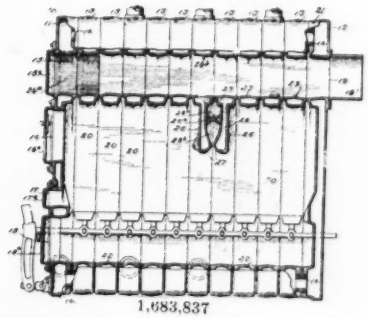
1,684,288. Oil Burner. Raymond H. Smith and Clem B. Meyers, Richmond, Ind. An oil burner comprising a casing whose upper end forms a mixing chamber, an oil supply pipe extending upwardly through the casing, a deflector within the casing to direct incoming air into the mixing chamber, an oil distributer at the upper end of the oil supply pipe fashioned with a continuous inclined spiral channel terminating at its base in a circular groove, a plurality of projections having staggered openings between them for the flow of the oil in fine streams into the mixing chamber and a dome-shaped shield extending over the distributer.



1,684.288.

* * *

1,683,837. Boiler. Andre M. Mertzanoff, New York, N. Y., assignor to American Radiator Company, New York,



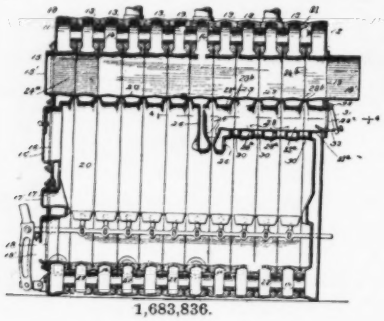
1,683,837

N. Y. A boiler of the character described comprising front, back, and intermediate sections communicatively connected, certain of said intermediate sections each having a depending water containing member communicating with the water spaces of the boiler and arranged parallel in spaced relation to form therebetween a transverse duct having a constricted discharge opening at its base, and horizontal partitions dividing the end portions of said

duct to form upper passages open at the outer ends thereof for conducting air to a point intermediate the ends of said duct and discharging the same into the lower portions thereof, substantially as specified.

* * *

1,683,836. Boiler. Andre M. Mertzanoff, New York, N. Y., assignor to American Radiator Company, New York, N. Y. In a heating apparatus of the character described, means for supplying secondary air thereto comprising a

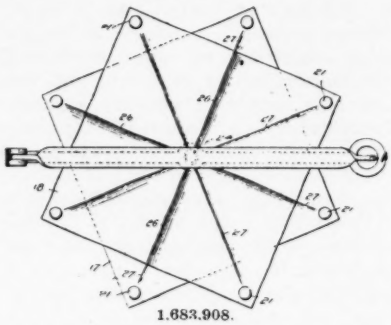


1,683,836.

water-backed duct arranged across the apparatus above and adjacent to the rear of the fuel bed and composed of separate, spaced, depending water-backed members communicating at their ends and upper intermediate portions with the water spaces of the boiler; said duct having its lower opposing wall portions tapering inwardly towards each other to form therebetween a relatively narrow, and longitudinal discharge opening, substantially as specified.

* * *

1,683,908. Thermostat. Perry S. Martin, Harrisonburg, Va. An all-metal thermostat comprising three broad rectangular plates secured together at their corners the central plate having a lower coefficient of expansion than the outside plates, the diagonals of the rectangles crossing each other at the center substantially at a right angle, substantially as described.



1,683,908.

Plumbing Department

1,684,196. Refrigerating Apparatus. Stuart Otto, Scranton, Pa., assignor to Iceless Automatic Refrigerator Company. A boiler absorber for refrigerating apparatus including a vessel having an upper distillation chamber, a lower absorption chamber, communication means from the lower part of one chamber to the lower part of the other, a water jacket for cooling the top wall of the upper chamber, and a separate water jacket for cooling the bottom wall of the lower chamber. A refrigerating apparatus, including a boiler-absorber, a heater, a controlling means for the supply of heating medium to said heater,

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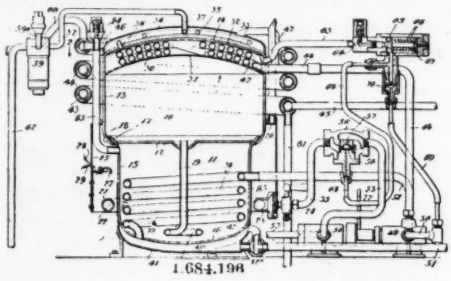
You do not have to confine your selling efforts on Holyoke Water Heaters to any restricted area. For the city, the Holyoke Gas Water Heater can be pushed, and for the suburban districts and farms, the Holyoke Kerosene Water Heater is incomparable.
Study the construction of Holyoke Heaters and you will at once understand why they are superior.
Write us for our complete catalog.
Holyoke Heater Co.
HOLYOKE, MASS.
Patented

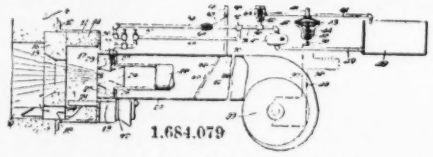
an emergency outlet conduit leading from said boiler-absorber, a rupture disk in said conduit for permitting



escape of refrigerant gas through said conduit when the pressure exceeds a predetermined pressure, and means operable to close said conduit.

* * *

1,684,079. Liquid-Fuel Burner and Control Mechanism Therefor. Raymond E. White, Chicago, Ill., assignor to Winslow Safety High Pressure Boiler Company, Chicago. In a liquid-fuel burner, the combination of a mixing chamber, means for supplying liquid fuel thereto, a primary air



passageway for supplying the requisite volume of air to said mixing chamber for supporting combustion during a relatively low stage of firing, a secondary air passageway for supplying a supplementary volume of air to said mixing chamber during an advanced stage of firing, a throttle controlling the air flow through said secondary air passageway, valve means for supplementing the supply of liquid fuel to said mixing chamber, and actuating means cooperating with said throttle and said valve means.

* * *

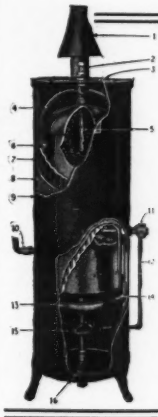
1,683,780. Method of and Apparatus for Purifying Water. Christian Hülsmeyer, Dusseldorf, Germany. A device of the class described, comprising a vertically extending chamber, a deoxidizing material in the lower part of said chamber, means for introducing water into the lower part of said chamber in such a way as to cause the deoxidizing material to circulate with the water in the lower part of said chamber, a filter in said chamber above the zone of circulation, and an outlet for the water above said filter, whereby the deoxidizing material accumulating in said filter will fall by gravity into the zone of circulation.

* * *

1,683,884. Flush-Control Means for Water-Closet Hoppers. William U. Griffiths, Philadelphia, Pa. A water-closet hopper provided at its upper rear side with a rearwardly extending tubular projection, the said projection having mounted thereon a nozzle which projects partly thereinto, which nozzle comprises a tubular section having a laterally and outwardly extending flange located about the middle of its length, means for securing the said flange to the outer end of the said tubular projection, and the inner end of the said tubular section of the nozzle terminating in a wall which extends at right angles to the axis of the said section, and the said section being provided with a transversely extending slot at its upper side in adjoining relation to the said wall.

* * *

1,684,097. Combined Drain Cock and Relief Valve. Herbert S. Humphrey, Kalamazoo, Mich., assignor to Ruud



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COPPER STORAGE SYSTEM

Has Sixteen Superior Points All Explained in Our Complete Catalog—Send for it.

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have given satisfactory service since 1876

No. 85 Qt. No. 86 Pt. For gasoline. Covered by patents

Insist on the "ALWAYS RELIABLE" for long and satisfactory service. Made in all grades and sizes.

Order through your distributor who will give prompt service and satisfactory prices.

Stocks of torches, also furnaces, in Newark, N. J., New York City, Chicago, and San Francisco.

Also specify for the "ALWAYS RELIABLE" plumbers' tools.

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HINDLEY'S Plumbers' Helps

These important small items can save you much time and unneedful labor if you have a supply of them always on hand. And of course you want Hindley's—they're better in every way.

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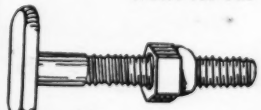

CLOSET BOLT

HINDLEY MFG. COMPANY
Valley Falls, R. I.

Stop Water Hammer With

The STINSON Patent Equalizing Valve

A system designed to prevent Water Hammer and any reaction in the water supply system in the building. If properly installed, the Stinson Equalizing Valve is guaranteed to completely and thoroughly remove any vibration in water pressure systems of piping.

The Valve is made in sizes as conditions require.
Stock sizes: 1¼, 1½ and 2¼ inch.
1¼ inch will take care of from ½ inch to 1¼ inch supply.
1½ inch will take care of from ½ inch up to 2 inch supply.
2¼ inch will take care of from 2 inch up to 4 inch supply.

Send rough sketch of piping in basement and I will advise you the proper place to install the equalizer.

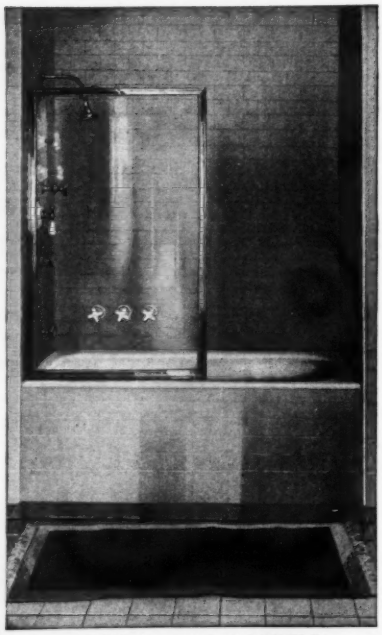
Robert Stinson, 1632 Forbes Street, Pittsburgh, Pa.

C & S
SHOWER SHIELD

If you are a progressive contractor you will want to display *C & S* Shower Doors and Shields in your showroom.

They are finished in either chromium plating or nickel silver and customers can see at a glance how they will enhance any bathroom.

Write us for detailed information.



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CRIST & SCHILKEN CO.
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Closet and Pipe Cleaning Devices bearing the name Coleman mean highest quality, quickest work, longest wear. They include many exclusive Coleman features.

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Bottom: Flat Steel Sewer Rod with oval spear point and automatic grip handle.

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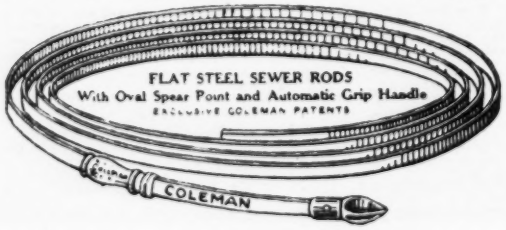
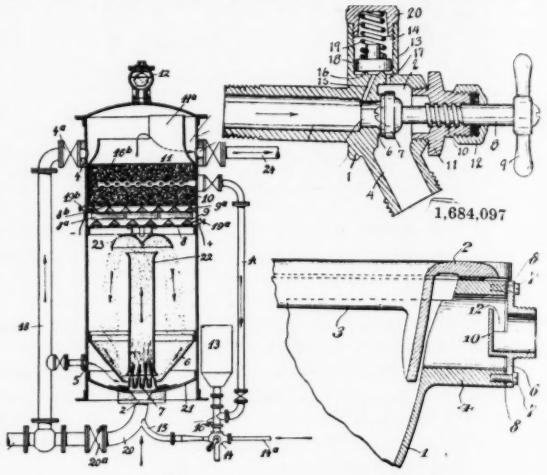
ALLAN J. COLEMAN, 208 N. Wabash Ave., **Chicago, Ill.**



Manufacturing Co., Kalamazoo, Mich. In a valve structure of the class described, the combination of a casing having a main valve chamber provided with an inlet port and a relief valve chamber disposed at the side of said main valve chamber and having an inlet port opening cen-

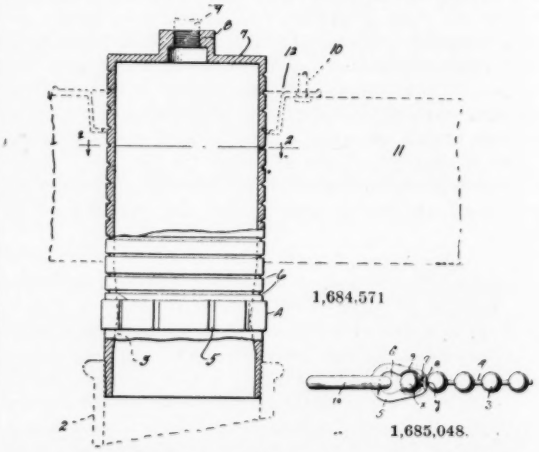


1,683,780 1,684,097 1,682,884

trally to said relief valve chamber and communicating with the inlet port of said main valve chamber, said relief valve chamber having a discharge port opening to said main valve chamber, said ports being surrounded by raised annular valve seats, a main valve coacting with said main valve chamber port and provided with a threaded stem in alignment with said inlet port, a relief valve coacting with said relief valve port, a spring acting to hold said relief valve to its seat, and means for adjusting said spring.

* * *

1,684,571. Ferrule for Connecting Plumbing Fittings with Piping. Edward W. N. Boosey, Detroit, Mich. A ferrule for connecting a plumbing fitting with a pipe comprising a hollow tubular member open at one end and



1,684,571 1,685,048.

externally threaded at the said end for introduction into the pipe, a portion of the wall of the ferrule above the threaded end being of greater thickness than the remaining portion thereof, a shoulder portion provided on the exterior of the member at the said thicker wall portion of a form to provide a wrench hold, the wall of the ferrule above the wrench hold being formed with spaced circumferential grooves providing weakened lines along any one of which said ferrule may be severed, the opposite end of

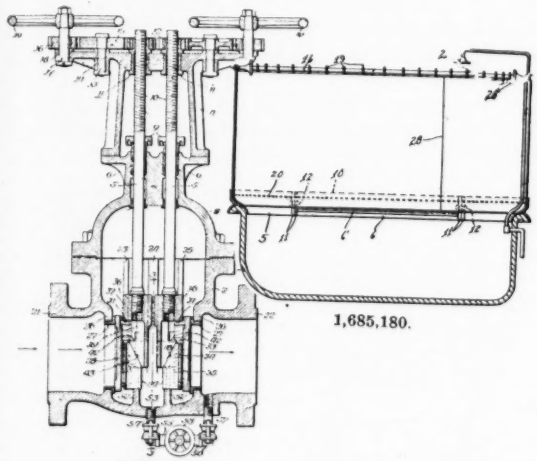
the ferrule being closed by a well integral therewith, a central projecting boss at said closed end having a threaded aperture to receive a plug for closing the same.

* * *

1,685,048. Coupling for Bead Chains. William J. Gagnon, Bridgeport, Conn., assignor to The Bead Chain Manufacturing Company, Bridgeport, Conn. A coupling device for bead chains, comprising a plate apertured to afford a hole of sufficient diameter to accommodate the end ball of the chain, said hole merging into a slot of less width than the diameter of the ball, but adapted to accommodate a chain link connected to the ball, said slot extending to a point adjacent a margin of the plate, and said margin of the plate at the end of said slot being offset to form a restraining lip.

* * *

1,684,651. Valve. Charles A. G. Wayman and Adolph F. Gartz, Jr., Chicago, Ill., assignors to Crane Co., Chicago, Ill. The method of operating a gate valve having independently operable inlet and outlet gates and a by-pass valve connection opening into said valve between said gates comprising, opening said by-pass valve connection to relieve built-up pressure between said gates, opening the outlet gate while the inlet gates remain closed, and thereafter opening the inlet gate.



1,685,180.

1,684,651.

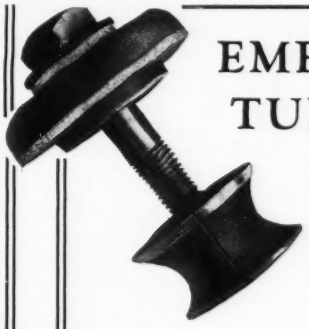
1,685,180. Attachable Shower. John C. Sheller, Maywood, Ill., assignor to John F. Saye, Maywood, Ill. A device of the type described comprising a frame arranged to be secured to a bath tub, uprights carried by said frame, a tube similar in general curvature to said frame, a downwardly extending spraying member, communications between said spraying member and said tube, a curtain adjustably carried by said tube, an inwardly extending spraying member carried by and in communication with said tube, and means integral with said frame for receiving a portion of said curtain for guiding water which engages with said curtain into the tub.

* * *

1,685,298. Valve. Edward U. Siena, Cleveland, Ohio. A valve comprising, a valve seat having an upstanding flange with an exterior conical surface, a ball for the seat, and means for holding the ball in the seat, said means also being adapted to contract the flange around the ball after it has become worn.

* * *

1,684,805. Attachment for Sinks. Riziero Panunzi, Geneva, Ill. An attachment for sinks comprising a flat integral sheet metal piece bent to form a body portion having a back, a bottom and two ends, and a front portion



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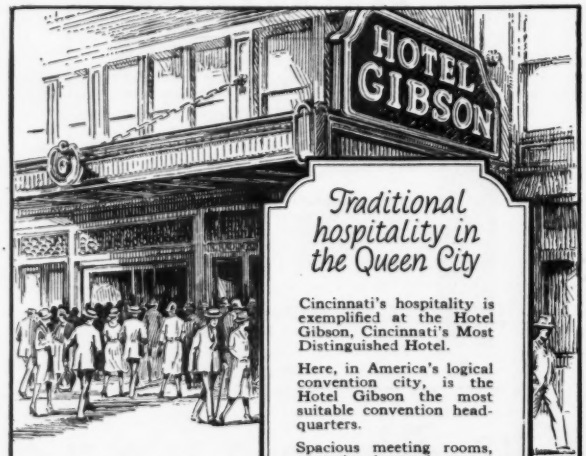

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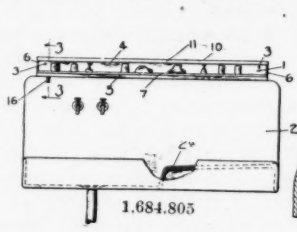
of less height than the back so as to leave the top open laterally and vertically and a removable perforated piece separate from the body portion and located between the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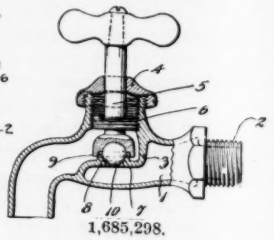
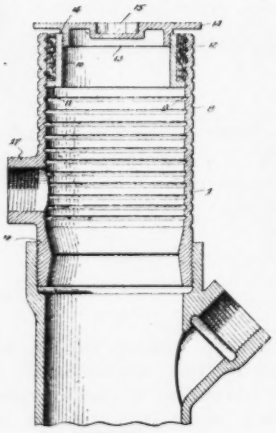

1,685,298.

back and front portions and having bent ends parallel to the ends of the body portion, said bent ends resting on the bottom of the body portion, the top of the perforated piece being below the level of the front portion of said body portion so that articles placed thereon cannot slide laterally out of the body portion.

* * *

1,684,572. Clean-Out Fitting for Plumbing Systems. Edward W. N. Boosey, Detroit, Mich. A cleanout fitting for plumbing installations comprising a hollow cylindrical member having a threaded open end and means for closing the opposite end providing a wrench-hold for threading the device to a conduit, said fitting having a hub adjacent the threaded end for connection of a conduit therewith, the wall of the fitting being internally and externally circumferentially grooved providing a series of weakened areas permitting severance of the closed end thereof at any of a number of points, the internal grooves being in staggered relation with the external grooves.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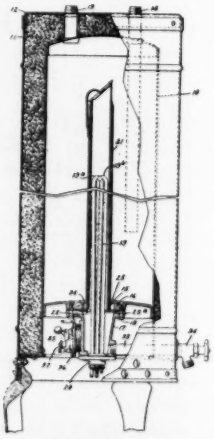
1,685,642.

1,685,642. Water Heater. Francis H. McCormick, Glen Ellyn, Ill., assignor to Edison Electric Appliance Company, Inc., Chicago, Ill. A water heater comprising a tank, heating means for said tank, and temperature responsive means for controlling said heating means so as to heat a relatively small quantity of water in the top of the tank to a predetermined high temperature and thereafter heat the water in the lower regions of said tank without substantial increase in the temperature of the water at the top of the tank.

The McKamy Plumbing & Electric Co., Houston, Tex., has been incorporated by J. A. McKamy, Lela McKamy and others.

A. M. Selb, Long Beach, Calif., has engaged in business at 537 West Ninth street, under the name of the Economy Plumbing & Heating Co.

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YOUNG SUPPLY HOUSE IN CENTRAL states, wants branch manager to invest any portion of $20,000 and become an officer of the company, enjoy our rapid growth, both financially and position. Will stand the strictest investigation. Give qualifications in detail. Address Key 257, "Domestic Engineering," 1900 Prairie Ave., Chicago.

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FOR SALE — PLUMBING, HEATING and tinning business in live Minnesota town, 2,500 population. Inventory and fixtures, $3,000.00. Good reason for selling. Address Key 250, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

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MANUFACTURER'S AGENT CALLING on plumbing and heating trade, central Pennsylvania territory, wants additional lines of specialties for season 1929. Will handle accounts or sell direct for manufacturer. Answer with full particulars. Address Key 260, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

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Miscellaneous

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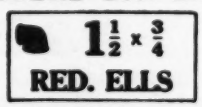

Send for samples and prices of card holders, bin labels and stop valve tags, and free booklets: "How to Lay Out the Plumbing Shop" and "How to Train the Apprentice Boys." Haddon Bin Label Co., Haddon Heights, N. J.

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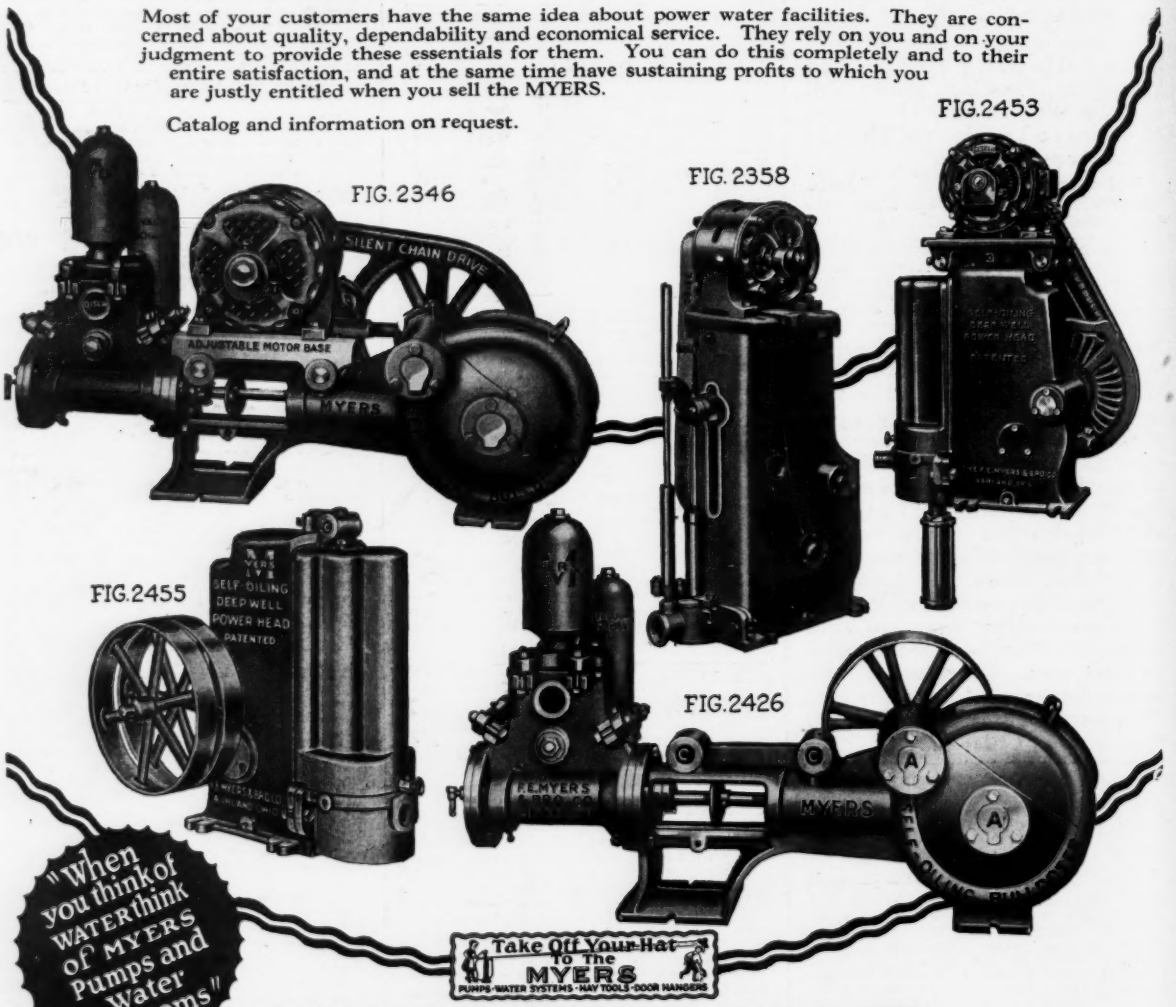

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